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The problem of our vanishing markets as the result of foreign competition must be attacked at its roots.

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Diemakers Suffer; '61 Cars May Help



Diemakers' shipments fell from \$1.3 billion in 1957 to \$925 million last year. Hope for a speedy recovery is dim as the industry's '59 pace lags.

WINDOWS OF WASHINGTON 98

Maneuvering for a tax cut has begun. Don't get too excited. Any reforms will be relatively minor.

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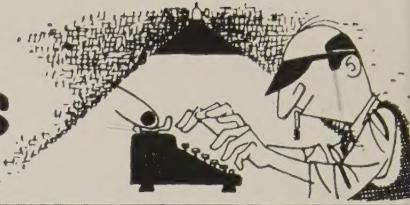
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behind the scenes



Some Background Stuff

Our natural modesty prevents us from openly claiming kinship with wisdom teeth and vermiform appendices, but this commendable reluctance doesn't alter the relationship: We're all three vestigial remnants of early developments that have sidetracked themselves in a modern world.

In September, 1937, the editors of STEEL instituted a department which they called "Behind the Scenes." They planned to use the space to gossip about editorial personnel, comment on coming attractions, reveal stories behind stories, and generally get cozy with the reader. The page was to be an informal meeting ground, and it made its first appearance in the Sept. 20 STEEL, on Page 176, back in the market section. It didn't make the contents page, possibly because editorial management feared to give it an air of permanency.

The name Shrdlu was selected as a byline because this grouping of letters is synonymous with editorial anonymity. The letters are formed when a Linotype operator sweeps his hand across a row of keys on his machine. If you were to make a glissando across the bottom row of keys on your typewriter, for example, you would create the word zxcvbnm. In passing, it might be noted for the record that this word has met with little favor, either because of our stuffy attitude toward exotic cacophony, or our inability to pronounce it, or both.

The Reader Is Served

Over the years, half a dozen men took their turn as Shrdlu, and successively raised the quality of the page until the current Shrdlu took over five years ago. He was instructed to hold the page until the editors worked out a new and improved formula for reader service. Indeed, concern for the reader guides all STEEL editorial and advertising activity. Readers of business publications look for information and ideas; it is the prime responsibility of business magazine publishers to supply them. Progressive business publications constantly adjust themselves to modern times; if they don't, they stand an excellent chance of being referred to as former business publications.

Readers of the world's foremost metalworking weekly will be happy to learn that the new formula mentioned above has been formulated: Beginning next week, an alert, helpful character named Ed Service will take over this page; he will serve as guide, conductor, expeditor, and general liaison editor. A new look in reader service, the feature will make its bow on Page 5 of the June 1 STEEL. The old look, in the form of Shrdlu's "Behind the Scenes," ends right on this page.

Winding up the affairs of ourselves and our predecessors involved an extended amount of research in old bound volumes because nobody could remember for sure when the feature started, or how it began. The main trouble with research is the researcher's straying interest: He is inclined to follow every intriguing trail that presents itself, and he gets nowhere in a hurry, like a coon dog turned loose in a game preserve. The Sept. 20, 1937 issue of STEEL was loaded with fascinating crosstrails.

Looking Backward

News from Detroit hinted that Cadillac, spurred by Cord's success, was about to spring a completely different model for 1938. It was rumored that the new model would have no running boards. If we can permit ourselves a comment, in the light of events that came long after, it seems that the running boards dried up and blossomed years later as fins.

Our Washington editor solemnly reported that structural activity in 1938 would be moderately above that of 1937 and nobody could have made a more cautious report than that, particularly when it should be remembered that structural activity in 1937 had nowhere to move but up. He mentioned also that Congress was investigating the staggering amount of scrap flowing out of the country. Armament programs in Britain, Japan, and Italy were draining America's scrap supply—but we got a lot of it back—right square in the teeth.

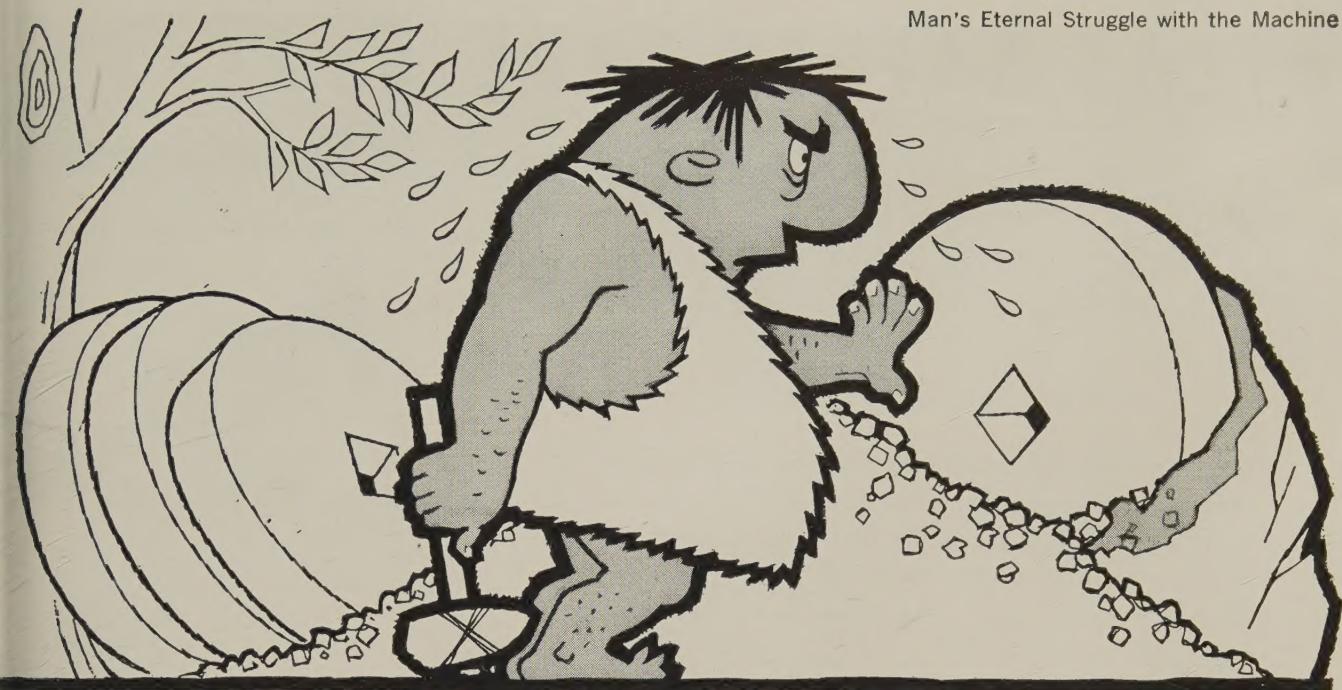
Exit Shrdlu

Average hourly earnings in 1937 increased from 70.7 cents in June to 71 cents in July. Well, maybe them 1937 cents couldn't buy Jaguars with that faded spinach, but they seemed to be doing right in their Model As.

A feature story described the production of sterling silver flatware, a technical article concerned progress in steelmaking—but what has all this got to do with Shrdlu closing up shop? Ah, that's the trouble with old magazines: You bark after every item, and forget what you started out to investigate.

Washington, Napoleon, Chief Log and Lincoln made some notable farewells, but we can't seem to lift anything appropriate from their remarks. Let us therefore, thank you for your attention and forbearance; saying which, we bow back into the curtain, it falls and envelops us—and thus, in character to the end, a muffled "so long, folks!" comes from

Shrdlu



COMPETITIVE PRESSURES AND RISING COSTS DEMAND GREATER PRODUCTION EFFICIENCY THAN EVER BEFORE

How do you know you're making your product right?

Rather curious question, isn't it! But before you laugh it off, take a good look at what's happening on your production line. There's more processes using manufacturers than there are manufacturers using processes.

What you're looking for is efficiency. Lack of it costs money. The kind *you* pay in overhead, competitive advantage, rejects, rework operations, etc.

For example—consider your resistance welding...

How many spot welds are you using to assemble the piece parts of your product?... as many as will fit in the space?... enough to "be sure" it will hold?... or as many as *really required!* No matter how you figure it, the first two cost too much money. Because they require either too much equipment or too much time. Usually both!

Many manufacturers use resistance welding for speed. Weld integrity (which, incidentally, does not necessarily penalize speed) is often overlooked. In order to make up for lack of weld quality, more

welds are used. But fifty poor welds aren't any better than fifteen poor welds. They just cost more. Particularly when five *welds of suitable quality* will do the job!

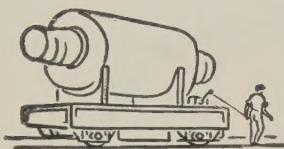
Sciaky knows that weld efficiency is a matter of combining quality with speed. That's why Sciaky equipment is precise enough to produce consistently. Once suitable quality is established, you can depend on it throughout the toughest production conditions.

Why take less than the full advantage of consulting with a Sciaky Application Engineer the next time you're considering equipment. No obligation, of course.

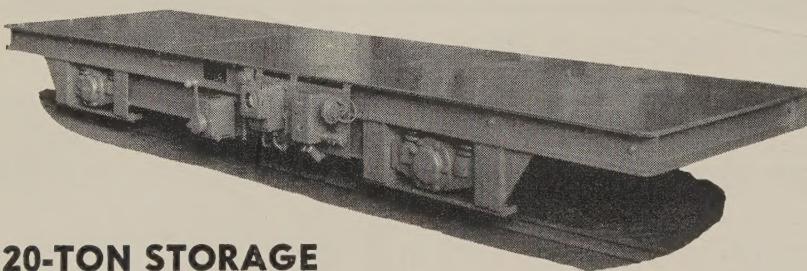
The manufacturers of automobile wheels took that advantage. As a result those wheels are now being assembled with eight suitable quality welds instead of twelve rivets. Automatically. Four other operations have even been included. As a result, the wheels are better, and made faster at lower cost.



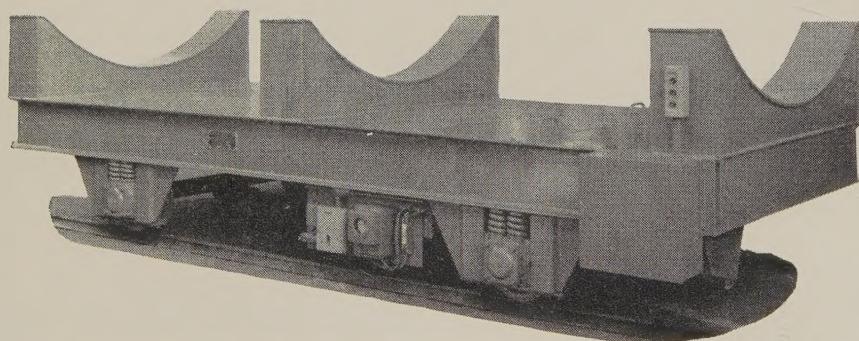
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LETTERS TO THE EDITORS

Wanted: Productivity Killers



"How to Combat These Productivity Killers" (May 11, p. 114) was read with much interest. I would like to have 15 copies for distribution to our supervisors.

N. W. Blakely

General Manager
Benwood Works
Wheeling Steel Corp.
Benwood, W. Va.

Requests Reprints for Congress

Will you please send me two reprints of "The Case of the Vanishing Jobs" (Apr. 6, p. 99)?

One is for a senator, and one for a representative.

J. W. O'Brien

Purchasing Agent
Steel City Testing Machines Inc.
Detroit

Refigures Metal Use in Autos

After reading the fine article, "Stainless, Zinc Hold Trim Market" (Apr. 20, p. 65), I recomputed the table of poundages by car, weighting by the first quarter, 1959, production. I thought the revised company and industry averages might be of interest in that stainless steel compares more favorably with other materials when adjusted for production by make. The revised averages are:

	Zinc	Stainless	Aluminum
GM	60 lb	36 lb	43 lb
Ford	61	27	60
Chrysler	44	31	70
Industry	58	32	51

R. A. Pitcairn

Corporate Development Section
Crucible Steel Co. of America
Pittsburgh

A Rare Opportunity

I've just read your short, pithy editorial, "Nine Week Steel Strike?" (Apr. 20, p. 45).

It seems to me that there is a rare, once in a lifetime opportunity for the steel industry to take a patriotic stance and gain great prestige by announcing a price reduction of \$1 or \$2 per ton. I

(Please turn to Page 12)

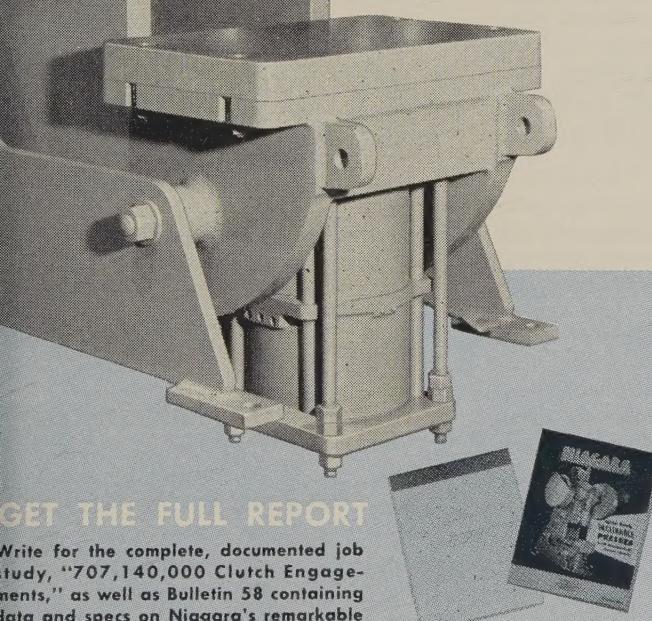
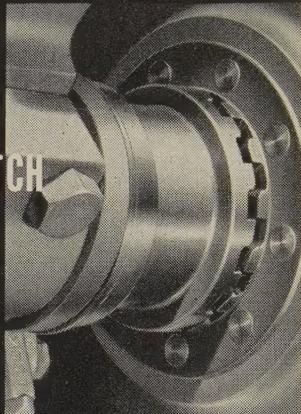
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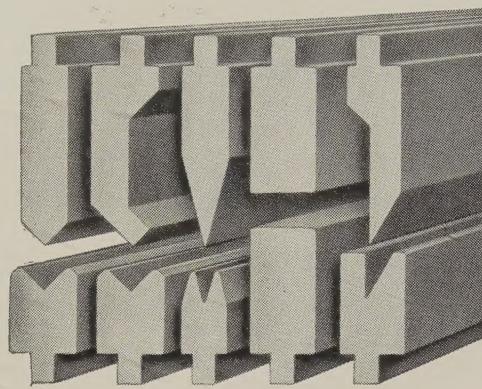
Automatically fed for single stroking operations, 28 Series A Presses have produced 707,140,000 parts in the plant of a renowned appliance manufacturer since 1950. Clutches have required but \$123.30 in replacement parts. No engaging surfaces have been replaced on any press. Examination shows no measurable wear. Original machining marks still visible.

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LETTERS

(Concluded from Page 10)

think such a strategic (and surprise) move at this time would:

1. Prevent a strike.
2. Put the nation's No. 1 basic industry in a position of leadership in the fight against inflation.

3. Prevent the loss of millions of dollars in wages and earnings.

4. Conform to the President's appeal that some responsible segment of our economy take the lead to halt inflation, even at some sacrifice.

5. Deflate some of the so-called biggest names among labor leaders.

6. Be a good, belt tightening gesture and help meet the ever increasing problem of foreign competition.

The industry may say that an offer to reduce prices of finished steel without an increase in wages would nullify its contention that earnings are not unreasonable in relation to other industries.

However, there is more at stake than the immediate necessity of nullifying the industry's contention with regard to earning comparisons. At stake is stopping the vicious inflationary spiral. At stake is to find a large and influential industry which is willing to make some sacrifices in the interests of the entire country. At stake is the necessity for some dramatic and forceful recognition of foreign competition. At stake is real business leadership under our democratic system.

Let us suppose that this unique move results in a temporary reduction of earnings for the industry. Is that worse than uncontrolled inflation, a nasty strike, increased foreign competition? Is that worse than a major industry "me-tooing" and failing to provide leadership at a time when it is so important to the country as a whole?

Richard S. Smith

President
Rigidized Metals Corp.
Buffalo

Fast Steelmaking Interest High

"From Iron Ore to Steel in 35 Minutes" (Apr. 27, p. 100) is of considerable interest. May we have three additional copies?

Francis D. O'Leary
Director of Purchases
Louis Berkman Co.
Steubenville, Ohio.

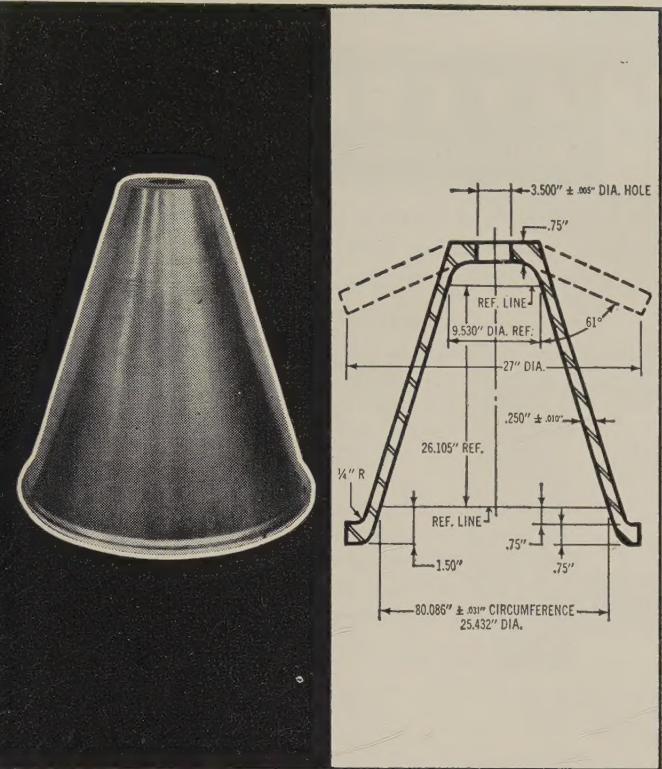
Decimal Misplaced on Sulfur

In "From Iron Ore to Steel in 35 Minutes" you show an analysis of the steel. It has a rather high sulfur content (0.21 per cent). This seems unusually high even for the Arizona ore you mention. Will you check this figure?

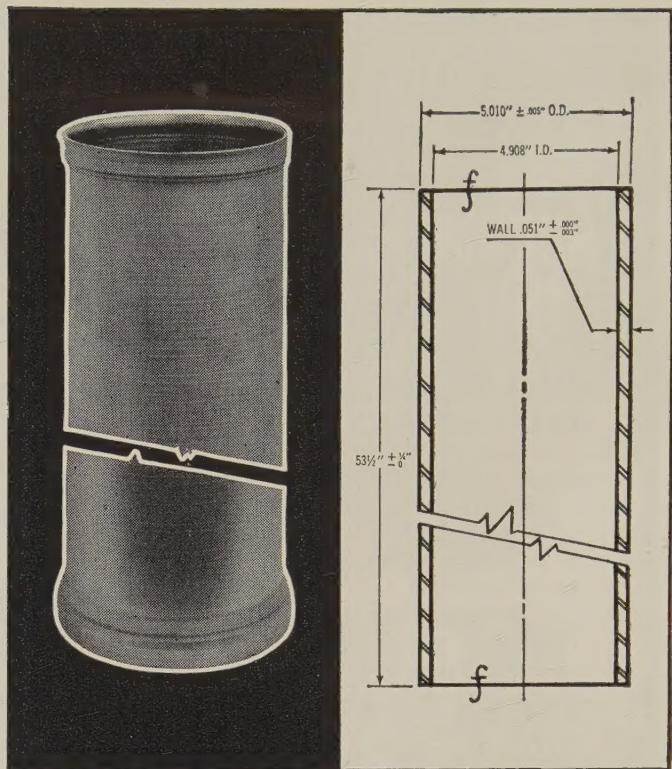
R. E. Minto

Jones & Laughlin Steel Corp.
Cleveland

• On rechecking, we find the figure should have read 0.021.



STRAIGHT SIDE MISSILE EXIT CONE—Spun with constant wall thickness from press pre-formed 1040 steel blank: 29" diameter, $\frac{3}{4}$ " thick.



STRAIGHT WALL ROCKET TUBE—Spun from 4135 steel tubing (wall thickness $\frac{1}{2}$ ") reduced to finished wall .051".

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stantially increases their strength. Tensile increases $1\frac{1}{2}$ to 2 times, yield point is raised in even higher proportion, and fatigue strength is substantially improved. And ROTOFORMED parts can be heat treated to increase their ductility.

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WHAT ABOUT TOLERANCES AND FINISHES? Extremely close tolerances and tolerances commonly associated with fine machining are routine in the production of ROTOFORMS. It is not uncommon for ROTOFORMED parts taken from the machine as is to have inside diameters held to tolerances of $+.000" - .003"$, $+.005" - .000"$, and $+.005" - .005"$.

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Because dimensional tolerances and inside surface finish have a direct relation to the variation and finish of blank from which the ROTOFORM is produced, when necessary the tolerances of a blank can be reduced and its finish improved beforehand in order to provide closer tolerances and a better inside finish in the actual ROTOFORM. In addition, the outside surfaces of ROTOFORMS can be brought to smoother finish by grinding, polishing or fine machining.

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CALENDAR OF MEETINGS

May 25-26, Malleable Founders' Society: Annual meeting, Homestead Hotel, Hot Springs, Va. Society's address: 1800 Union Commerce Bldg., Cleveland 14, Ohio. Executive vice president: Lowell D. Ryan.

May 25-26, Wire Reinforcement Institute Inc.: Annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va. Institute's address: National Press Bldg., Washington 4, D. C. Managing director: Frank B. Brown.

May 25-27, American Society for Quality Control: Annual meeting and exhibit, Sheraton-Cleveland Hotel and Public Auditorium, Cleveland. Society's address: 161 W. Wisconsin Ave., Milwaukee 3, Wis. Administrative secretary: W. P. Youngclaus Jr.

May 25-28, Design Engineering Show & Conference: Convention Hall, Philadelphia. Information: Clapp & Poliak, 341 Madison Ave., New York 17, N. Y.

May 25-30, Concrete Reinforcing Steel Institute: Annual meeting Greenbrier Hotel, White Sulphur Springs, W. Va. Institute's address: 38 S. Dearborn St., Chicago 3, Ill. Managing director: H. C. Delzell.

May 27-28, American Iron & Steel Institute: Annual meeting, Waldorf-Astoria Hotel, New York. Institute's address: 150 E. 42nd St., New York 17, N. Y. Secretary: George S. Rose.

May 27-29, National Fluid Power Association: Spring meeting, Grove Park Inn, Asheville, N. C. Association's address: 1618 Orrington Ave., Evanston, Ill. Executive vice president: Barrett Rogers. May 31-June 3, American Gear Manufacturers Association: Annual meeting, Homestead Hotel, Hot Springs, Va. Association's address: 1 Thomas Circle, Washington 5, D. C. Executive director: John C. Sears.

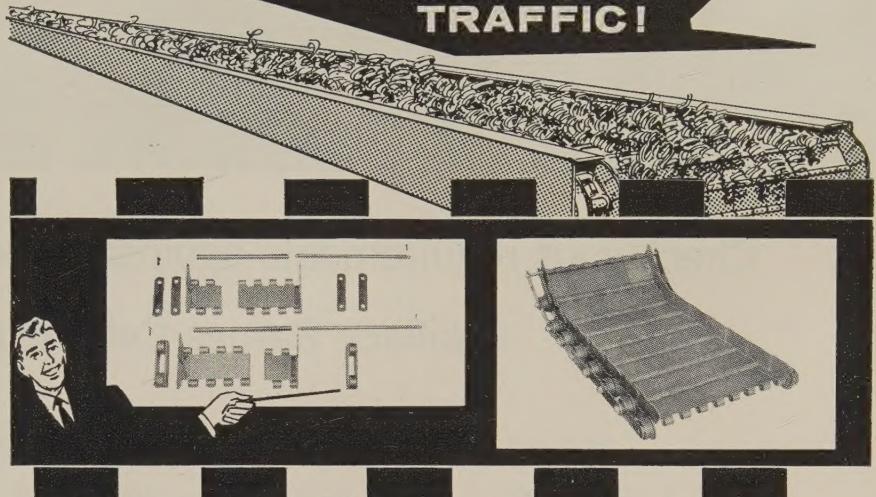
June 2-4, National District Heating Association: Annual meeting, Skytop Club, Skytop, Pa. Association's address: 287 N. Euclid Ave., Pittsburgh 6, Pa. Secretary-treasurer: John F. Collins Jr.

June 9-12, Material Handling Institute Inc.: National exposition of material handling equipment, Public Auditorium, Cleveland. Institute's address: 1 Gateway Center, Pittsburgh 22, Pa. Managing director: L. West Shea.

June 11-12, Pressed Metal Institute: Sales conference, Bedford Springs Hotel, Bedford, Pa. Institute's address: 3673 Lee Rd., Cleveland 20, Ohio. Managing director: Harold A. Daschner.

June 13-15, Metal Powder Industries Federation and Powder Metallurgy Committee of the Metallurgical Society, AIME: International conference on powder metallurgy, Hotel Biltmore, New York. Information: Metal Powder Industries Federation, 130 W. 42nd St., New York 36, N. Y.

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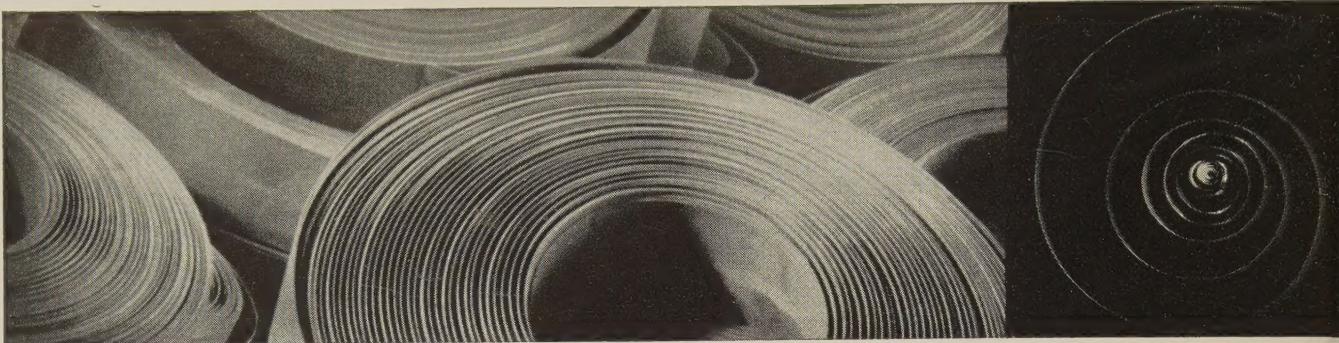
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Scale-free or scaleless; polished*; polished and blued*; polished and strawed*

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.003 - .004" in widths $\frac{1}{8}$ to 2"	.031 - .035" in widths $\frac{1}{4}$ to 7"
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.008 - .009" " $\frac{1}{8}$ to 4"	.041 - .049" " $\frac{3}{8}$ to 6"
.010 - .014" " $\frac{3}{16}$ to 5"	.050 - .060" " $\frac{1}{2}$ to 4"
.015 - .019" " $\frac{3}{16}$ to 7"	.061 - .064" " $\frac{1}{2}$ to 3"
.020 - .025" " $\frac{1}{4}$ to $8\frac{1}{2}$ "	.065 - .093" " $\frac{3}{4}$ to 3"
.026 - .030" " $\frac{1}{4}$ to 8"	

*Maximum width for polishing in .010 - .030 thickness ranges is 5 in.

Facilities for processing alloy steels also are available.

Standard sizes normally available for prompt shipments.

Write for a copy of "Physical Property Charts" that give performance characteristics of .90 - 1.05% and .70 - .80% carbon grades.

Wallace Barnes Steel Division

Bristol, Connecticut



**Associated Spring
Corporation**

Metalworking Outlook

May 25, 1959

How Much Steel Capacity Would Operate During a Strike?

12.2%

Some are captive shops. vacations then. 5. Most are booked up (Page 89).

If the steelworkers strike July 1, 52 producers with annual capacity of 18 million tons (12.2 per cent of the industry) will continue to operate. But don't count on too much help from them because: 1. Their monthly output is less than 1.5 million tons. 2. 3. Many are specialty producers. 4. A few will take

Metalworking's Net Earnings: Up Substantially from Year Ago

	% change: 1st Qtr, 1959, from	
	1st Qtr	4th Qtr
1958	1958	1958
Iron & steel	*	+18
Electrical equipment	+17	-31
Machinery	+25	18
Other metal products	+38	-11
Automobiles & parts	*	+22
Other transportation equipment	-17	+25
Mining & quarrying	+22	-27

Source: First National City Bank of New York.

*Over 100 per cent increase.

How Machine Tool Builders Will Combat Foreign Competition

Look for more American machine tool builders to set up overseas plants. And expect more of them to market foreign machines in this country. A STEEL survey shows that more than one in four U. S. builders have capacity abroad now and 16 per cent more will establish foreign capacity in the next year (Page 96). One in ten domestic builders already market foreign machines in the U. S., and 8 per cent more intend to sign with foreign firms within the next year. England and the Common Market are the most popular choices for foreign operations. This new note is revealed by the survey: Some special machine builders are joining the move to Europe. Until now, nearly all foreign competition was in standards.



How UAW Will Counter Membership Losses

Faced with a better than 20 per cent decline in dues paying members during the last two years, the United Auto Workers is mapping a counterattack. The still big (about 1.1 million members) union will probably move in these two directions: 1. It will set up a new, more extensive, campaign to enlist whitecollar workers; few areas will be sacred. 2. It will attempt a broader

political push aimed at reducing the workweek under the Fair Labor Standards Act (union officials think it will be several years before they can shorten hours through collective bargaining), establishing some kind of government or public supervision or review of industrial price setting, and extending and liberalizing unemployment and welfare benefits. In collective bargaining, look for the UAW to emphasize some form of guaranteed annual wage (SUB is the icebreaker) plus severance pay and relocation allowances.

Ohio Law Is Just in Time for USW

Within a few weeks, the strings will be loosed on the big purses full of Supplemental Unemployment Benefits built up in Ohio during the hassle over SUB's legality. (A new Ohio law legalizes SUB payments.) About \$15 million will be paid to union members. It may come in the nick of time for steelworkers, if David McDonald calls a strike on July 1. The retroactive SUB payments would keep striking steelworkers off the hunger list, easing the pressure on union leaders for a quick settlement.

Is It "Great to Live in Michigan"?



The state's slogan may not reflect the true atmosphere. High wage rates and business taxes plus an unemployment burden discourage businessmen from locating their plants in the state. Some are moving out of Michigan to Ohio, Indiana, and Illinois. Others are going south. In 1949, the state accounted for 57 per cent of the nation's automotive employment; the figure dropped to 48 per cent last year. Unemployment climbed from 6.9 per cent of the labor force in '56 to 12.2 per cent this year. The state is attempting to regain its former industrial position (Page 104).

How To Skim to Work

Curtiss-Wright Corp. plans to market an "air-car" in limited numbers. The vehicle skims 6 to 12 in. above the ground. It'll be powered by a conventional piston engine and come in one to four passenger models. Sizes, powers, and configurations will be announced after more market research.

How General Electric Keeps a Customer

Arnold Uggla is materials manager for General Electric's Shelbyville, Ind., plant. But he spends some of his time in the plants of his firm's customers. Reason: He has discovered that a good way to keep clients happy is to investigate their problems first hand. At a cost of 1/10 of 1 per cent of what the customer buys annually, he saves contracts, boosts GE's prestige, and improves the effectiveness of regular sales and service personnel. Moral: Adapting your own methods to better serve your customers can pay big dividends (Page 94).



Demand for Technical Graduates Rises

College recruiters are trying to fill 5 to 10 per cent more positions this year than last, reports University of Michigan. Competition is rugged for technical students, but there has been a slight decrease in demand for non-technical graduates. Starting salaries are up 2 to 10 per cent from a year ago. You'll pay around \$400 a month, on the average, for beginning sales people.

Tool and Die Recovery Is Slow



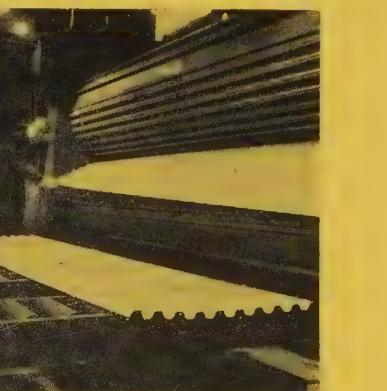
Tool and die shops haven't shared fully in metalworking's recovery. Normally an indicator of the business trend, the industry this year is failing to even parallel metalworking's sales uptrend. One reason is that price fighting has continued. Another reason: Some buyers are waiting to see if the boom is real before socking a lot of money into new tooling (Page 92). Orders will improve with the 1961 auto program this fall.

Romney Asks Limits on Bargaining Power

The nation will suffer from current steel labor negotiations whether there's a strike or not, says George Romney, president, American Motors Corp. "The consumer is rendered ineffective by the excessive concentration of union and employer power," he contends. "The type of collective bargaining that has developed has established pattern bargaining and persuasion by power, not persuasion based on the economic facts at separate enterprises," he says.

A Little Steelmaker Heads for the Big Time

By yearend, Granite City Steel Co., Granite City, Ill., will have 1,584,000 tons of annual ingot capacity. It has tripled capacity since 1951. Two concerted growth programs have boosted its capacity and production at three times the industry average. Current emphasis is on upgrading finishing departments (Page 173). The programs' effectiveness was proved last year when the firm held its earnings within 6 per cent of the 1957 mark.



Peek at 2000 A.D.

The twenty-first century housewife will buy a week's supply of food in 21 prepackaged cartons, selected from more than 100 menus available at the market. She'll push a button and the proper carton will be conveyed from the freezer to the electronic "cooking station" automatically; the food will be cooked as desired with no human effort. Thermoelectric refrigerated

drawers will be found in the family room, den, basement, and maybe the bedroom for a midnight snack in bed. Automobiles will be of three basic types: 1. Electric ones that will cross the nation without recharging and eliminate smog. 2. Cars with conventional engines conducted along highways in which control cables are imbedded so you can "dial your speed" and relax. 3. Vertical take-off and landing airplanes which will be both safe and amazingly fast. Those are the predictions of Charles H. Weaver, vice president, Westinghouse Electric Corp., and Francis K. McCune, vice president, General Electric Co.

Dry Coat Lubricant Slashes Expenses

You may be able to save money on fabricating operations by using a dry coat drawing lubricant. Six large plants (Page 142) are. American Motors Corp.'s Kelvinator Div. reports it lopped 11 per cent off its fabricating costs in stamping appliance cabinets and is saving 20 per cent in cleaning operations. Scrap losses have been slashed 22 per cent due to better die life and easier maintenance.



Memorial Day Is Saturday; Who'll Work Friday?

Here's how Detroit area companies are developing work schedules to accommodate the Memorial Day holiday, according to a survey by Employers Association of Detroit. (Most will follow same procedure for July 4):

	Per cent of companies:	Hourly employees	Salaried employees
Will suspend operation Friday (May 29) and give holiday pay	19	26	
Will suspend operations Monday (June 1) and give holiday pay	4	4	
Will grant free day with pay later	2	12	
Will give holiday pay but no day off	67	18	
Will not give time off or holiday pay	8	40	

Straws in the Wind

The cold shoulder that the AFL-CIO turned to Teamster boss James Hoffa's threat (a nationwide labor strike if Congress harnesses unions with antitrust laws) probably iced such a walkout for good . . . Expect Congress to be sympathetic to using non-earmarked funds for the interstate highway program . . . Private housing starts set a record for the first four months . . . Aluminum Co. of Canada Ltd. will boost aluminum sheet capacity $33\frac{1}{3}$ per cent (10,000 tons a year) . . . Russian machine tool production is running ahead of quotas set in the Seven-Year Plan . . . The Interstate Commerce Commission has O.K.'d a second loan guaranty to a railroad to buy equipment . . . The Atomic Energy Commission and Office of Civil & Defense Mobilization want every home to have a radioactive fallout detector. One might cost only \$5 to \$10 and attach to a battery radio.



Our Vanishing Markets

American metalworking industries are feeling the bite of foreign competition—at home and abroad.

We already have lost some markets—watches, sewing machines, bicycles, tableware.

Now the bite is going deeper into those great industries in which we traditionally have had an unquestioned advantage—machine tools, automobiles, steel products, and others.

The reasons are simple: Western European and Japanese industries have built modern plants, often with U. S. financial aid, installed new machinery and equipment, adopted the latest and most efficient methods. They have narrowed any technical advantage we once held.

More importantly, their wages are but a fraction of ours. European industries pay one-fourth to one-third the rates U. S. workers get. Japanese scales are about one-seventh of ours.

The net result: These politically friendly competitors can undersell us anywhere.

And too few Americans seem to care.

American workers are not yet aware that their jobs are being exported.

Government fails to realize how sharply its revenue sources are dwindling.

Industry, aware of the inroads being made in its markets by increased imports and decreased exports, has yet to find a solution.

This may be the gravest problem to be faced by America in the next decade. It will get much worse before it gets better. It could cause us to become a lame duck nation industrially.

Artificial restraints on trade are hardly an answer. While we will hear pleas for protective tariffs, import quotas, and Buy American campaigns, they can be, in a world suddenly grown smaller, only expedients.

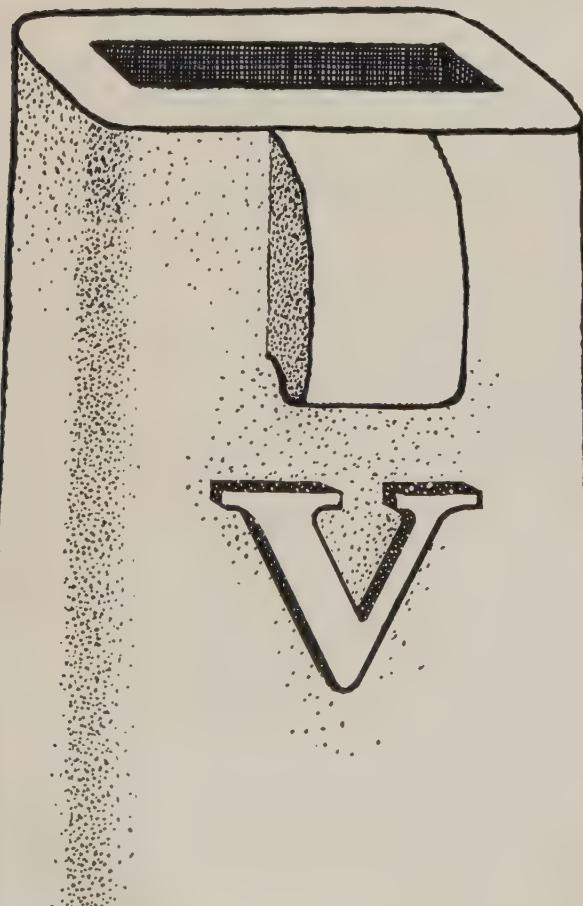
The problem must be attacked at its roots: At the narrowing margin of technical supremacy and, more particularly, at the wide disparity in wage costs.

Labor must recognize that it is pricing itself out of the market.

Government must encourage industry to become as efficient as possible, through constructive tax revisions and depreciation reform measures.

Industry will have to arm itself with every cost cutting tool available, restore its margin of productivity over that of foreign competitors, and hold the line against broadening the already too wide wage disparity.

EDITOR



Tomorrow

we'll harness the energy of the sun

but even then

steel will be poured into

**VALLEY
INGOT
MOULDS**

VALLEY MOULD AND IRON CORPORATION

GENERAL OFFICES: Hubbard, Ohio
WESTERN OFFICE: Chicago, Illinois
NORTHERN OFFICE: Cleveland, Ohio

If USW Strikes, These Will Operate

Ingot Producers	Location	Annual Ingot Capacity (Net Tons)
Alan Wood Steel Co.	Ivy Rock, Pa.	800,000
Armco Steel Corp.	Middletown, Ohio; Butler, Pa.	3,114,000
Babcock & Wilcox Co.	Beaver Falls, Pa.	229,450
Baldwin-Lima-Hamilton Corp.	Burnham, Pa.	188,710
Borg-Warner Corp., Ingersoll Steel Div.	New Castle, Ind.	64,000
Braeburn Alloy Steel Corp.	Braeburn, Pa.	20,730
A. M. Byers Co.	Ambridge, Pa.	90,000
Cameron Iron Works Inc.	Houston	58,800
Carpenter Steel Co.	Reading, Pa.; Bridgeport, Conn.	171,500
Columbia Tool Steel Co.*	Chicago Heights, Ill.	6,600
Continental Steel Corp.	Kokomo, Ind.	420,000
Edgewater Steel Co.	Oakmont, Pa.	117,600
Erie Forge & Steel Corp.	Erie, Pa.	284,000
A. Finkl & Sons Co.	Chicago	33,600
Florida Steel Corp.	Tampa, Fla.	43,000
Ford Motor Co.	Dearborn, Mich.	1,898,600
Harrisburg Steel Co.	Harrisburg, Pa.	100,750
Heppenstall Co.	Pittsburgh; Philadelphia	213,250
Industrial Forge & Steel Inc.	Canton, Ohio	84,000
International Harvester Co., Wisconsin Steel Div.	Chicago	1,200,000
Isaacson Iron Works Inc.	Seattle	102,000
Joslyn Mfg. & Supply Co.	Ft. Wayne, Ind.	37,500
Keystone Steel & Wire Co.	Peoria, Ill.	475,000
Kilby Steel Co.	Anniston, Ala.	34,020
Knoxville Iron Co.	Knoxville, Tenn.	38,000
Laclede Steel Co.	St. Louis	600,000
Latrobe Steel Co.	Latrobe, Pa.	24,000
R. G. LeTourneau Inc.	Longview, Tex.	90,000
Lone Star Steel Co.	Dallas	800,000
Merritt-Chapman & Scott Corp.	Milton, Pa.	90,000
Mesta Machine Co.	New Castle, Pa.; West Homestead, Pa.	171,000
Mississippi Steel Co.	Flowood, Miss.	45,000
National Forge & Ordnance Co.	Irvine, Pa.	25,000
National Steel Corp., Weirton Steel Co. Div.	Weirton, W. Va.	3,300,000
Newport News Shipbuilding & Drydock Co.	Newport News, Va.	15,000
Northwest Steel Rolling Mills	Seattle	53,000
Northwestern Steel & Wire Co.	Sterling, Ill.	825,000
Oregon Steel Mills	Portland, Oreg.	150,000
Pencoyd Steel & Forge Corp.	Philadelphia	15,600
H. K. Porter Company Inc.	Birmingham; Huntington, W. Va.; Aliquippa, Pa.	234,600
Roanoke Electric Steel Corp.	Roanoke, Va.	25,000
Simonds Saw & Steel Co.	Lockport, N. Y.	21,600
Southern Electric Steel Co.	Birmingham	66,000
Southwest Steel Rolling Mills	Los Angeles	45,000
Texas Steel Co.	Ft. Worth, Tex.	132,450
Timken Roller Bearing Co.	Canton, Ohio	700,000
Union Electric Steel Corp.	Carnegie, Pa.	25,000
Universal-Cyclops Steel Corp., Empire-Reeves Steel Corp. Div.	Mansfield, Ohio	500,000
Vanadium-Alloys Steel Co.	Latrobe, Pa.; Monaca, Pa.	42,000
Washburn Wire Co.	Phillipsdale, R. I.	93,000
Wickwire Bros. Inc.	Cortland, N. Y.	32,440
Yuba Consolidated Industries Inc., Western Rolling Mills Div.	Helena, Ariz.	60,000
Totals	52 Companies	18,005,800

*Will be on vacation from July 3 to July 20. Expects to operate thereafter.

IF THE STEELWORKERS go out on general strike this summer, don't count on much help from mills that will continue to operate.

Five reasons: 1. Even though 52 producers won't be hit, they account for only 12.2 per cent of the industry's capacity. Their combined monthly output is under 1.5 million tons, and the product mix is out of balance with demand. 2. Several of the larger ones are "captive" shops, with all output going for their own needs. 3. Many of the smaller companies make specialty steels with limited applications. 4. Several report that they will take their annual vacations during the strike—if it comes. 5. Practically all are booked solid through the period of any likely strike.

• **Down from '56**—If the United Steelworkers pull a general strike, as they traditionally have, the steel consumer will be harder put to find domestic sources of supply in 1959 than he was in 1956. (For the import picture, see STEEL, May 18, p. 55.) During the month-long strike three years ago, 64 companies with annual capacity of more than 23 million ingot tons continued to operate—18 per cent of capacity then.

Fourteen of those companies, with current annual capacity of almost 10.5 million tons, are missing from the list at left. Some have disappeared through mergers. The union has organized others. A few had contract expiration dates other than June 30 in 1956, but some of those dates now coincide with Big Steel's deadline. A few companies are new to the list, having been formed since 1956.

Another significant fact brought out by STEEL's survey is that contract extensions, which were common in 1956, will be scarce in 1959.

• **The Missing**—Prominent among the missing names in the list are: Copperweld Steel Co., Detroit Steel Corp., Granite City Steel Co., Kaiser Steel Corp., McLouth Steel

Corp., National Supply Co. (now a part of Armco Steel Corp.), and Rotary Electric Steel Co. (part of Jones & Laughlin Steel Corp.).

• **All-Out Effort**—This survey adds further weight to the belief that the union will call a general rather than a selective strike on July 1 if a new contract has not been reached (see story at right). Some feel the union had this in mind when it pushed back the expiration date of their contracts to June 30. Others see the lack of extensions as a sign of an all-out strike. A few tell STEEL that they are feeling union pressure to close down on July 1 if there's a strike even though they have never done so before. (Many steelmen say their workers have no taste for a strike this year.)

However, one of the larger companies which operated during the 1956 steel strike says that it thinks there is a chance it may do so again this year because the union will use divide and conquer tactics as the auto workers did in 1958.

The companies in the accompanying list fall into three categories laborwise: 1. Those with no union. 2. Those with a union other than the USW. 3. Those with USW contracts expiring after June 30 (most common date is July 31). Regardless of the union situation, most will automatically grant their workers the same settlement that USW works out with Big Steel.

With this assurance, USW has granted a few extensions where conditions warrant. One tool steelmaker reports it already has an extension because some of its competitors that have another union will be operating. USW realizes a shutdown would put the company in an unfair competitive position and might result in lost jobs.

• **Creeping Paralysis**—If a strike should go beyond 30 days, the supply of domestic steel will dwindle rapidly. Not only will more contracts expire, but nonintegrated producers will also be forced to shut down. Several tell STEEL that they will have enough ingots and billets on hand to last from four to six weeks. Some rail steel barmakers will be in business as long as they can get acceptable rails, but their tonnage is limited.

Selective Strike in Steel?

It's possible but not probable if labor negotiations reach an impasse. Union might consider the strategy if government and member pressure is strong against a general walkout.

A JULY STRIKE in steel still looks likely.

Even through the dimout in news about negotiation progress you can see that both sides retain their original positions—a no-cost-hike stand by the companies, a substantial - increase-in-wages-and-benefits stand by the union.

• **What Kind of a Strike?**—It's too early for the United Steelworkers to decide precisely what the strategy will be in case of a strike, but it's undoubtedly considering the merits of a selective walkout. Odds are strongly against such a move, but it remains a possibility. The companies consider it to be enough of a threat to investigate ways to combat the strategy with a mutual aid plan (STEEL, May 18, p. 57). Because of legal problems, they haven't come up with much anybody in top management can be enthusiastic about.

Mutual aid problems may be academic when you consider the pros and cons of a selective strike.

• **The Pros**—Two arguments could persuade the USW to strike only one or a few of the major steel companies.

1. There's no doubt that USW President David McDonald could pull all his steelworkers out, but there's also no doubt that he doesn't want to. His members had a rough year in 1958, and 50,000 are still not back at work. He'd have less grumbling among the membership if he struck only one or a few companies.

2. He wants to avoid government intervention, and he'd be more likely to do so if he doesn't disrupt the whole industry and economy with a general walkout. A selective strike would be safer.

• **The Cons** — Several arguments will probably dissuade the union against a selective strike if the negotiations lead to a walkout in July.

1. The union wants a uniform contract because it's far easier to handle than dissimilar pacts. It would be tough to get the same contract via selective strategy.

2. Not since 1941 (when it got basic steel almost entirely organized) has the union struck a part of the industry to force a new contract on the whole. Its style of bargaining (and striking) on a substantially industrywide basis has been highly successful. Steelworkers are among the highest paid in the world.

3. All the bargaining procedures are set up on the industrywide basis. A few steel companies don't bargain in the general setup (see Page 89), but they're special cases. And they're less numerous than in 1956—52 now vs. 64 three years ago.

Speculation about divide-and-conquer tactics bobs up during every steel labor hassle. The union has never struck selectively. The reasons for doing so this time may be stronger than ever before, but they still may not be potent enough to persuade the USW to deviate from tradition.

Ore Giant in Lake Service

S. S. *Shenango II*, a 710 ft ore carrier in the 25,000 ton class, recently entered Great Lakes service at Cleveland. It will transport ore and coal for the Shenango Furnace Co., Pittsburgh.

The \$8 million carrier, built at the Toledo works of American Ship Building Co., Cleveland, will operate mainly between Lake Erie ports and Snyder Mining Co. properties in Minnesota. The vessel is also designed for service in the salt water regions of the St. Lawrence Seaway.

The new ore carrier has a depth of 37½ ft and beam of 75 ft, a girth which will require careful handling through the 86 ft locks of the Soo and Seaway. The *Shenango*, powered by a General

electric, crosscompound, geared turbine of 8500 shaft horsepower, will travel at a loaded speed of 16½ mph.

Steel Firm Gets Help

Bridgeport Brass Co., Bridgeport, Conn., has agreed to make its metallurgical knowledge, fabricating facilities, management resources, and commercial organization available to Mallory-Sharon Metals Corp., Niles, Ohio. In exchange, Bridgeport Brass has an option to purchase an interest in Mallory-Sharon equal to that of other stockholders P. R. Mallory & Co. Inc., Indianapolis; Sharon Steel Corp., Sharon, Pa.; National Distillers Products Corp., New York).

Ductile Iron Use Triples

A record 20,000 tons of ductile iron will go into the manufacture of valve bodies this year, compared with about 6000 tons used last year, predicts International Nickel Co. Inc., New York.

Consumption of ductile iron by the valve industry in 1961 will climb to 100,000 tons annually, says Donald J. Reese, director of the Ductile Iron Div. of International Nickel. Mr. Reese believes the material's corrosion resistance, machinability and process advantages account for its growing acceptance.

Ductile iron valves are finding more applications aboard oil tankers, and in chemical plants.

Bethlehem in Ore Venture

Bethlehem Steel Corp. is joining Swedish group in a Liberian iron ore development.

Liberian American-Swedish Minerals Co. (Lamco) and Bethlehem will develop a mine in the Mt. Nimba area of Liberia 170 miles inland. A railroad will be built from the mine to the coast at Buchanan where a deep water harbor will be created. Half of Lamco's stock is owned by the Liberian government. The other half is owned by private Liberian, Swedish, American, and Canadian interests.

The Mt. Nimba area reportedly contains one of the world's largest deposits of high grade iron ore.

Industrial Heating Orders on Rebound

NEW EVIDENCE of the belated rebound in capital equipment spending was offered last week by the Industrial Heating Equipment Association. It reported April orders for industrial furnaces at \$13.3 million, greater than the volume of the first four months of 1958.

March orders for fuel fired and electric processing furnaces totaled \$6.1 million vs. \$3.6 million in March, 1958. Orders over the last four months reached \$25.7 million, up from the \$13.2 million of the year-ago period.

Much of the increase has been captured by builders of steel mill furnaces, although makers of heat treating and other types have shared in the pickup. Induction heating equipment makers booked orders of \$4.2 million in the first four months, well over the year ago volume of \$1.8 million.

Heating equipment demands for planned expansions abroad are boosting sales in lines not available from foreign builders; current order-

ing is ahead of where it was in 1958 and 1957. Domestic builders are also spending more of their own money on research facilities to develop Space Age technology. Case in point: Brazing methods for extremely large honeycomb sections are under study.

McLouth Orders Furnace

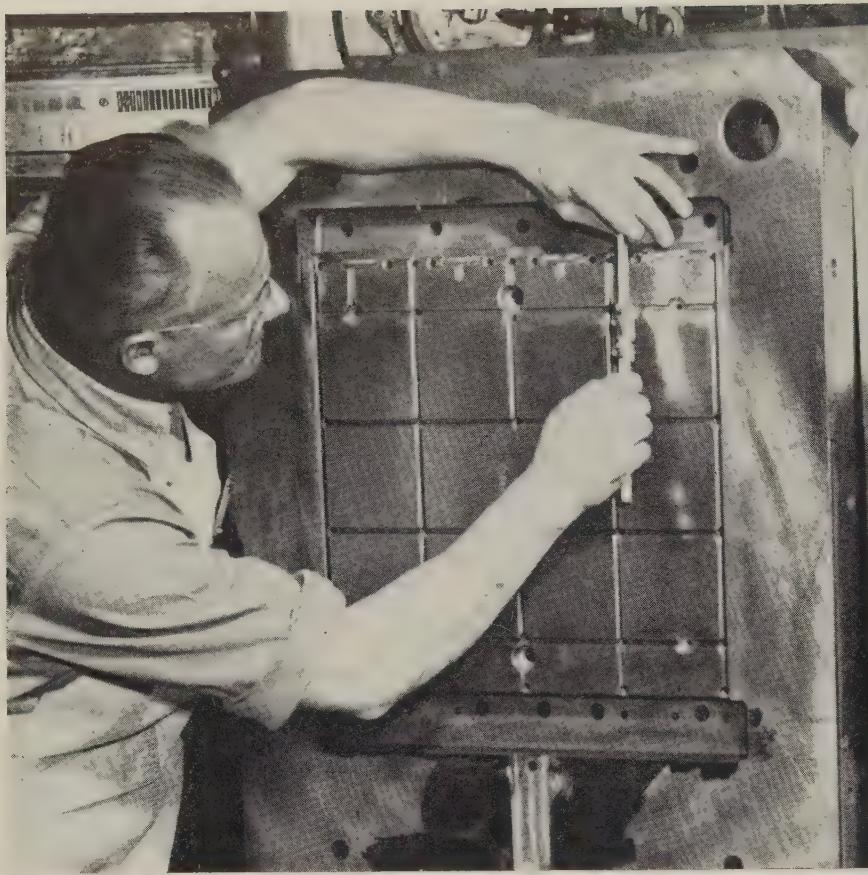
McLouth Steel Corp. has ordered another basic oxygen steel furnace from Pennsylvania Engineering Corp., New Castle, Pa., for its Trenton, Mich., plant. The furnace is expected to give the steelmaker the country's largest basic oxygen steel capacity. It is rated at 110 tons per heat and will go into operation late this year.

SKF Invests at Altoona

SKF Industries Inc., Philadelphia, has launched a \$4.5 million expansion program at its Altoona, Pa., plant. Scheduled for completion by the end of the year, the project will increase manufacturing and office areas to 160,000 sq ft. The plant produces ball and roller bearings.



COLORED TAGS help in trimming shippingroom costs. It's proving effective at Brace-Mueller-Huntley Inc., Syracuse, N. Y., service center. The problem: Many shipments look alike. So it sometimes takes a great deal of searching and sorting to locate the correct one for a waiting truck. That wastes the time of the truck driver, a shippingroom worker, and perhaps a crane operator or the driver of a fork lift truck. The solution: Shipping tags are printed in ten different colors. Each trucking firm making pickups at B-M-H is assigned a color. Any shipment is identified quickly.



Tool and Die Shipments

(Millions of dollars)

1959	\$1100*
1958	\$ 925
1957	\$1275
1956	\$1400
1955	\$1115

Source: NTDMA.

*Estimated by STEEL.

Diemakers Suffer; '61 Cars May Help

THE RECOVERY in the tool and die industry is short of expectations. Shipments picked up in February after a 22 month slump, and the upturn extended into March, but new orders in March were 12 per cent below the pace in the same month last year.

Backlogs have been building slowly since August. (They're now 14 per cent above year-ago levels.) Leadtimes are shortening. Some shops are expanding their work forces and operating 50 to 55 hours a week. March showed the largest employment gain in many months, although a number of companies are still plodding along at last year's average workweek (40 to 45 hours).

The industry may turn the corner by summer. "But it could be another disappointing year," cautions George Eaton, executive vice president, National Tool & Die Manufacturers' Association. A minority

of respondents to a STEEL survey think that 1959 will be worse than 1958. (Shipments fell to \$925 million last year vs. about \$1.3 billion in 1957.) But the consensus is business will improve 12 per cent.

- **Why?** — The situation puzzles many. Mr. Eaton offers one reason for the extended slump: "Metal manufacturers are managing with their present tooling. When they're sure the boom is real, they'll heavily invest in new tooling."

- **Autodom Has Key**— "The greatest single factor for our recession is the curtailment of automobile tooling programs," reports a Pennsylvania firm. Dollarwise, shops in Detroit suffered a 10 per cent decline last year, but the quantity of work remained fairly stable (largely because of price fighting).

The 1961 auto program will be

"one of the biggest ever," enthuses a Motor City diemaker. Work is to begin in late August and September. Ford will require 6 million hours of tool and die work. General Motors has scheduled sheet metal changes on all lines. Chrysler is due for extensive reworking.

- **Cutthroat Pricing** — Automakers are soliciting bids from shops outside Michigan in an attempt to push costs down. They're also dickering with foreign firms. Lower labor costs have enabled some Wisconsin and New England outfits to bid \$4 to \$5 an hour. Detroit shops have bid as low as \$6.50 to \$7, but the "best work" goes for \$8. Foreign firms have bid \$2 to \$3.

"Price cutting is the rule rather than the exception," charges an Illinois company. The industry's overcapacity has promoted "panic bidding," states a New York tool-

maker. "The government's policy of allowing prime contractors to subcontract helps promote price battles," declares another New Yorker.

A few die sets are selling for less than the makers pay for plates at a steel service center. Some engineered die supplies are selling for less than catalog goods.

A midwest company reports Cleveland and Dayton, Ohio, Indianapolis and South Bend, Ind., are the most competitive pricewise. It charges: "Rates are \$4 to \$4.50 when they should be \$6 to 8."

Half of STEEL's respondents predict a price increase this year. And 18 per cent said they would be up as much as 10 per cent.

• **Other Problems**—Tooling requirements are expected to decline in the future. The drop in manned aircraft has created a gap. Missiles need less tooling and stamping. Re-usable dies, interchangeable parts, and the pirating of old dies result in fewer die changes. More companies are doing their own work. "And the cost of a complete retooling job is almost prohibitive," remarks an Ohio manufacturer.

• **Outlook Mixed**—Specialized shops are faring best. Small shops and fringe outfits have a bleak outlook. A Detroit manager says: "The Grade A shops are doing well. The inefficient ones are in trouble. We're just going through a weeding out process."

"The steel companies made a profit at only 55 per cent of capacity. We could too if the industry were stable," muses an Ohio die supply executive.

• **Foreign Competition**—Most firms surveyed denied losing business to imports. But many "knew" of companies which were facing overseas competition.

"This foreign business is overrated," scoffs a diemaking. Automakers were accused as the biggest "offenders." ("A typical out-of-Michigan reaction," retorts a Detroit toolmaker. "We're not hurting.") A Cleveland diemaking says the Big Three have hired dozens of die-makers to finish imported dies.

The toy industry is reportedly buying molds and dies from West Germany and England. Japan is said to be supplying stamping firms.

A leading diemaking bid \$12,000 on a California job. The same carbide die could be obtained from England for \$7000, including all duties and transportation—and delivered four weeks sooner! The buyer said the foreign die was good enough for the job. He promised to return to the domestic fold when he needed a quality product.

• **New Developments**—Interest in plastic tooling has died down. Applications appear to be limited to short runs and prototype work. Tape control is expected to be "really big," as soon as central area jobbers set up programming.

That will come about within five years, says a Michigan machine-maker.

Mill Supply Sales Hit Peak

American Supply & Machinery Manufacturers' Association sees 1959 volume at \$4.5 billion, compared with the previous high of \$4.4 billion in 1957

SALES of industrial supplies and equipment are breaking all records. While some strike hedge buying is going on, most purchases are for direct consumption.

Fred C. Emerson, new president of the American Supply & Machinery Manufacturers' Association, predicts that this year's sales will reach \$4.5 billion, topping the industry's previous high of \$4.4 billion in 1957.

The ASMMA adjusted new order index stood at 221 in March, matching the all-time high established in January, 1957. Mr. Emerson, vice

president of Spartan Saw Works Inc., Springfield, Mass., expects the index to jump to about 235 in April and May, settle back between 210 and 220 in the third quarter, and bounce up to 235 or 240 in the last quarter.

Consumer inventories of industrial supplies are again mounting to the 90 day level or better—about as they were in 1957. Inventories fell off to zero in 1958 when annual sales declined to \$3.8 billion.

• **Despite the record business outlook, prices on some lines are chaotic.**

On hacksaw blades, for example, distributors still are often willing to sell small quantities at large lot prices by erasing most of their profit margin. Other affected lines include twist drills, American pattern files, and cutting tools.

Imports, not yet a problem, may begin to exert pressure.

• **Distributors are worried about direct selling by manufacturers.**

The manufacturers feel that the distributing organizations are understaffed. They also maintain that technical people are needed to figure out product applications, make customer service calls.

The distributors, in defense, plan to develop better trained salesmen, with less sales staff turnover, and to concentrate on fewer lines of the more profitable goods.



Fred C. Emerson is the new president of the American Supply & Machinery Manufacturers' Association



1. GETS COMPLAINT "... and I'm placing my next order with your competition," Arnold Uggla, GE materials manager, hears from valued customer



2. WHAT HAPPENED? By prearrangement with manufacturing manager, C. M. Stevens, Mr. Uggla heads for a day with the customer

How GE Visited, Retained Customer

CUSTOMERS respect a factory staff. Take advantage of it.

That's the advice of Arnold Uggla, materials manager, General Electric Co., Shelbyville, Ind. "Top staff people can often clear up trouble far more easily than sales or service representatives. We find it pays big dividends in contracts saved, and increased prestige and effectiveness for regular sales and service personnel."

- **Here's the story behind the GE approach.**

About a year ago, Mr. Uggla learned that a major customer was about to switch his next order for heating elements to a competitor. The reasons: Orders were continually over or under quantities specified; deliveries were often 12 to 24 hours late; paperwork wasn't being han-

dled the way the customer liked.

GE could easily have rationalized the loss: Orders had to be made in batches because of a wide variety of shapes and sizes; rejections always left orders a few pieces over or under the requisition, and it was cheaper to ship "as is" than rush a few pieces through production or hold back an inventory; the customer insisted on picking up his order late at night after the shipping dock was closed; and he had five different ways of ordering parts.

But GE wanted the customer. Determined to find out whether the customer really needed such service, Mr. Uggla spent a day finding out. He learned that: 1. Competition in appliances is so rough that there is no margin for inventory. When the customer gets an order for 1000 appliances, he orders com-

ponents for 1000, no more, no less. 2. The customer's truck made the Shelbyville stop last to improve efficiency of multiple-stop schedules. 3. Contract problems with a wide variety of customers caused the variations in paperwork.

- **Learning why changed the GE attitude, fostered a greater desire to help.**

Mr. Uggla's visit impressed the customer. He postponed the switch so Shelbyville could adjust its production methods.

Now orders are shipped on the nose and on time. Ways were found to adjust to the customer's paperwork routine.

Cost: 1/10 of 1 per cent of what the customer buys each year.

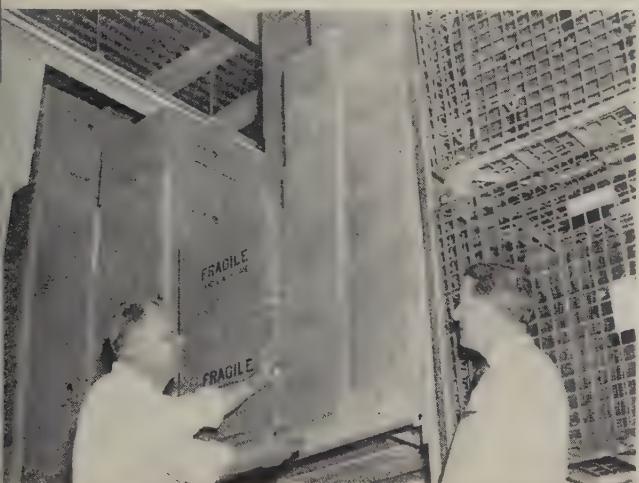
Result: The customer is still a customer.



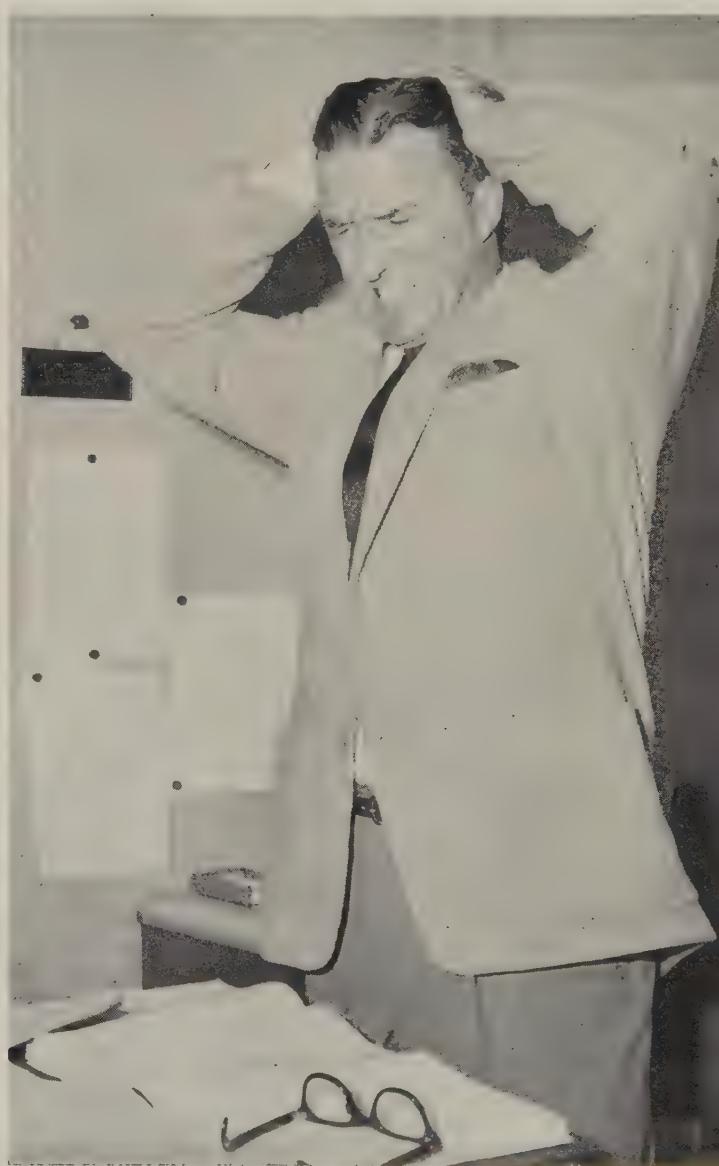
3. "SIX HOURS LATE." the customer complains.
"I had to send these people home . . . lost half a day's
production and delayed my shipments"



6. "FILL IT EXACTLY." Mr. Ugglia tells his
foreman. "Hold the order until the makeup units are
finished. Work overtime if you have to"



4. "HOLDING THE BAG" . . . that's what I'm
doing every time you short my orders. Here's what six
busy pieces can do." Customer shows incomPLETED
units in storage



5. COMES THE DAWN. Mr. Ugglia sees why
the customer has been ordering such a wide variety of
shapes. Customer needs variety to meet competition

7. PATIENCE, MR. UGGLA. You've learned
your customer's problems are real, important. You'll
find a way to adapt your methods, too



Machine Tool Capacity Goes Abroad . . .

More than 25 per cent of the U. S. builders have capacity overseas.

(32 of 115 respondents to STEEL survey have.)

Sixteen per cent more intend to establish foreign capacity in the next year.

(17 of 115 respondents say they probably will.)

and Builders Market Foreign Machines Here

Ten per cent of the domestic builders have signed with foreign firms.

(12 of 115 respondents will.)

Eight per cent more intend to sign up in the next year.

(19 of the 115 say they probably will.)

FACED with the unhappy prospect of increasingly heavy competitive losses, the U. S. machine tool industry has launched a drive to regain its share of the world market.

At the heart of the drive is an exodus of domestic machine tool capacity—to Europe. Then, to boost their competitive prowess in the U. S., some builders are signing up to market foreign machines here.

• Foreign plants will let U. S. builders throw off a host of handicaps.

Here's the problem: Foreign machine tools are good; some are excellent. Their prices range 20 to 50 per cent under those of American machines. They meet with fewer national restrictions, quotas, and currency exchange problems than do the American machines. The answer: Foreign capacity for U. S. builders.

Of the 32 STEEL survey respondents who have foreign capacity, 14

own their own plants, 16 have licensed foreign builders to manufacture their machines, and two have set up subcontracting agreements. Several have combinations of the approaches.

England is probably the most popular choice for a foreign operation, since it is the largest single potential market for many builders. The advent of the common market, however, is shifting some interest to operations on the continent.

• Special machine builders now join the move to Europe.

With few exceptions, U. S. machines built abroad have been standards. Builders of the specials have been able to compete in the foreign markets by building their equipment here and exporting it.

Even that picture is changing. Joseph H. Buhr, president, Buhr Machine Tool Co., Ann Arbor, Mich., and a leading builder of specials, points out: "The birth of

a special machine tool industry abroad has us facing their tough competition overseas, and we may soon face the problems of foreign competition here."

Of the 17 builders that figure they are likely to set up foreign capacity in the next year, six are leaders in the special machine and automation field. As one pointed out: "Our plans to move abroad reflect three things. First, we can compete better abroad against our American competitors. Second, we can compete better against the new European special machine tool builders. Third, we can, if it becomes necessary, build machine components at Europe's costs and bring them back into the U. S."

• Few builders will import foreign built machines.

Three builders that have foreign capacity told STEEL they have shipped components back into their home plants.

Of the builders who told STEEL they have signed to market foreign-originated machine tools in the U. S., only four import them. The rest build the foreign designs here.

Another task for the U. S. market: Build and sell a low cost machine.

Five other builders are using the same approach as Sheldon Machine Co. (See story at right.) One of them, Lapointe Machine Tool Co., Hudson, Mass., has come out with a bench size broaching machine that sells for only \$970.

Heald Machine Co., Worcester, Mass., offers a universal internal grinding machine that sells for \$12,000. An additional \$12,000 was knocked out of the price by design steps like simplifying the drive and hydraulic system, using standard machine units. Heald management figures the \$12,000 is equivalent to 1947 price.

Few builders like the idea of a mass export of machine tool capacity, but they figure it's a must if they're to survive in the world market place.

Ralph J. Kraut, president, Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., and president, National Machine Tool Builders' Association, says it is now likely that the physical volume of machine tool imports is greater than the exports. And the trend of both curves is against the domestic builder.

The exodus of domestic machine tool capacity may have become a necessity—an undesirable, but workable, solution. The only other apparent choice: Build in this country, which many would prefer, but face a waning export market.

Convinced that the capacity to build machine tools (and other capital goods) is an important part of our economic and defense base, many builders fear the long range consequences of placing a good portion of that capacity abroad.

Burnell A. Gustafson, vice president of machine tool operations, Sundstrand Corp., Rockford, Ill., believes domestic builders should manufacture at least some of each of their lines (including those imported) in their U. S. plants. He feels it's a minimum requirement to protect our defense base.

Builder Aims at a Competitive Price



Sheldon's Howard B. Carroll: "We feel this type relatively inexpensive lathe can handle as much as 80 per cent of the turning jobs in the average plant."

SOME aggressive machine tool builders try to remain competitive with foreign equipment by tailoring their products for markets.

Case in point: Sheldon Machine Co. Inc., Chicago, felt that the slot between the belt driven lathe and the geared head lathe wasn't adequately covered by American builders. Because of the improved quality of imports, foreign builders were taking a bigger slice of the market.

Sheldon brought out the 15 in., R Series lathe last fall. Since then, the company has sold over 150 machines and expects to sell at least that many more within the next six months.

Explanation: Apparently, the customer gets, and pays for, only the machine features he needs. The basic machine sells for about \$2600.

Howard B. Carroll, vice president, says: "To give a man a machine for this price, we offer this new lathe with a completely new headstock. This headstock, which now has four gears instead of the previous 12, can be coupled with a Lima gear transmission in the base of the machine and provide pulling power equal to that of our full geared head lathes. Items such as a one shot oiling system, standard tapered spindle, hardened bed ways, and apron control are optional at extra cost. If the customer feels those items are merely frills, he may leave them off the base machine and keep his investment to a minimum."

Mr. Carroll says the machines, when equipped with the same equipment as foreign counterparts, are about 10 per cent more than the imported version. But without the extras, the Sheldon lathe is priced as much as \$500 under the foreign makes.

All Sheldon lathes are built to NMTBA toolroom lathe standards, to assure the user of precision.

Mr. Carroll says: "We estimate that as much as 80 per cent of the lathework being done in the average plant can be done with machines of this type. This is the market to which we've tailored our product."



Tax Inquiry Unlikely to Yield Major Tax Cuts

MANEUVERING on Capitol Hill for a tax cut has begun. First round: Wilbur Mills (D., Ark.), House Ways & Means Committee chairman, has announced "an extensive inquiry into the opportunities for constructive reform of the federal tax system." Public hearings begin Nov. 2 (well after Congress recesses). Every element of our society will be heard by the committee, including economists, private tax research organizations, businessmen, and union representatives.

Recognizing the nature of the present boom, Mr. Mills thinks it's possible to develop some tax cuts without sacrificing government revenue. Higher corporate profits and higher personal income mean tax rates can be lowered.

For business, Representative Mills hopes to achieve "a tax climate more favorable to economic growth." Depreciation reform has not been singled out for study by the committee, but chances are it will be considered.

Crux: Don't get too excited about the prospects for tax cuts. Only relatively minor reforms could result. The Democrats resist being labeled "prounion" (by advocating huge personal income tax cuts) or "antibusiness" (by refusing to recommend any corporate tax cuts). The Republicans will tend to offer a better break on such matters as depreciation reform. Somewhere between those extremes, sound thinking by legislators like Mr. Mills may triumph.

Renegotiation Hearings Offer Lesson

Business may have learned a lesson in how to deal with Representative Mills as a result of hearings on the extension of the Renegotiation Act. It is said that Mr. Mills saw little willingness by business to compromise with extremists like Rep. Carl Vinson (D., Ga.), who cry "profiteer" against defense contractors. Neither did he believe, it is reported, that business offered the committee much constructive help in its efforts to bring out a better bill. He concluded it would be easier to extend the Renegotiation Act for four years rather than have a meaningless hassle every year or two.

Lesson: A moderate approach may bring quicker tax reforms than the "all or nothing" attack made by such representatives of business as the National Association of Manufacturers and the U. S. Chamber of Commerce. The middle-of-the-road legislator resists identification with either group or the AFL-CIO if he has the chance.

Congress Pressures AEC

Look for the Joint Atomic Energy Committee to add about \$46 million to President Eisenhower's Atomic Energy Commission budget for fiscal 1960. The total will still be less than the \$386 million Congress O.K.'d last fiscal year, notes Rep. Chet Holifield (D., Calif.). Some increases are for additional prototype reactors to hasten domestic development of electricity generating atomic plants. The committee is generally critical of the administration's lack of speed.

One of the last acts of Deputy Defense Secretary Donald A. Quarles was to approve plans for a true atomic powered plane, say Pentagon sources. Congress has criticized the White House on this issue, claiming the Russians will have an A-plane before us. If Mr. Quarles did O.K. a prototype plane (Convair would build it), you can expect the White House to follow his advice. General Electric will have a prototype engine ready by 1961. Airframe contracts must be let soon to coincide with the engine development.

Ike Turns Heat on Congress

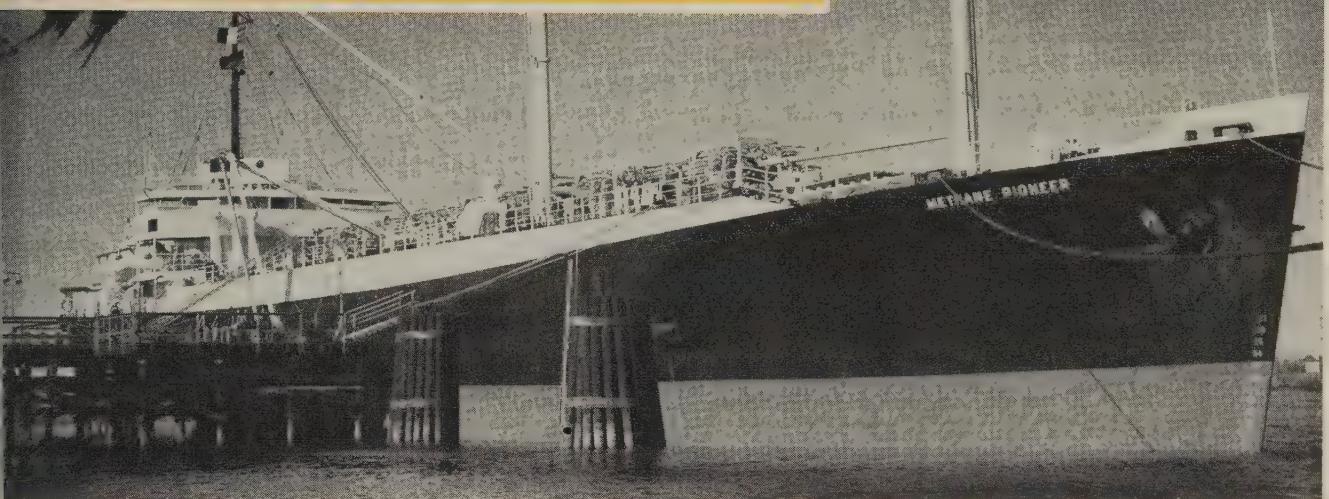
For a change, President Eisenhower did a little pressuring of his own last week. He told Congress he wants gasoline taxes boosted to keep the federal highway program on schedule. He also asked immediate passage of a housing bill giving the Federal Housing Administration authority to insure \$6 billion in home loans. Both programs are in serious danger of disruption, he charged, because of Congressional squabbles.

His recommendation may help speed legislation, but he will not get the sort of law he wants. Congress is almost certain to refuse to raise gasoline taxes. And it will likely pass a housing bill which includes plenty of dollars for public housing and urban renewal, programs which Ike wants cut sharply.

Defense Contracting Notes

Testimony of Carl Hokanson on small business' subcontracting problems was given to the Senate Government Procurement Subcommittee, not to the House Special Investigations Subcommittee, as indicated by STEEL (May 11, p. 108) . . . Advanced Research Projects Agency, the Pentagon's space office, is publicly referring to itself as "The Fourth Service." Air Force efforts to junk the agency continue . . . Sign of the times: The first ballistic missile sub will be christened June 9; the last of the Navy's conventional powered subs was launched May 16 . . . The Army has awarded a \$7.5 million contract to a French firm for antitank missiles.

Methane Carrier Brings New Market to Metalworking



MERGING NEW MARKETS for natural gas will mean new markets for metalworking. A converted cargo ship, carrying 35,000 barrels of methane, is proving that it's practical to ship refrigerated and liquefied natural gas from the Americas to Europe.

The ship (the 5000-ton *Methane Pioneer*, see picture) is jointly owned by British Methane Ltd., a Bahamian corporation formed by the Gas Council of Great Britain and Constock International Methane Ltd. Constock is owned by the Union Stock Yard & Transit Co. of Chicago and the Continental Oil Co. of Houston.

What It Means—The ships and equipment needed for the project could greatly benefit metalworking. Regular shipments are about three years off. They'll probably come from Caracas, Venezuela, to Great Britain. But Constock eventually hopes to have a fleet of 30 to 40 ships carrying liquefied natural gas to markets all over the world. Equipment will include liquefaction and storage facilities near

Caracas and vaporization and storage facilities near London.

E. F. Battson, president, Constock International Methane, says: "The success of this program is a tremendously significant technical achievement and a boon to the economy of many countries." He points out that Constock intends to provide liquefaction plants in foreign areas where large volumes of natural gas are available. It is unlikely that much, if any, gas will be exported from this country. Reason: It's cheaper elsewhere.

- **Why Do It**—Constock officials point out that manufactured gas costs Britishers more than imported natural gas and has less than half the Btu count. Result: Replacing manufactured gas with natural gas doubles the capacity of British gas mains.

- **Problems**—Liquefying the gas has been the sticker. It involves cooling it to -285°F and keeping it there. Besides being difficult, it has proved extremely dangerous. But Constock officials, while they keep

methods secret, say they have licked both problems.

When liquefied, methane contracts to 1/600 its original volume. One barrel of liquid methane equals about 3500 cu ft of gas. That property makes it economically feasible to ship.

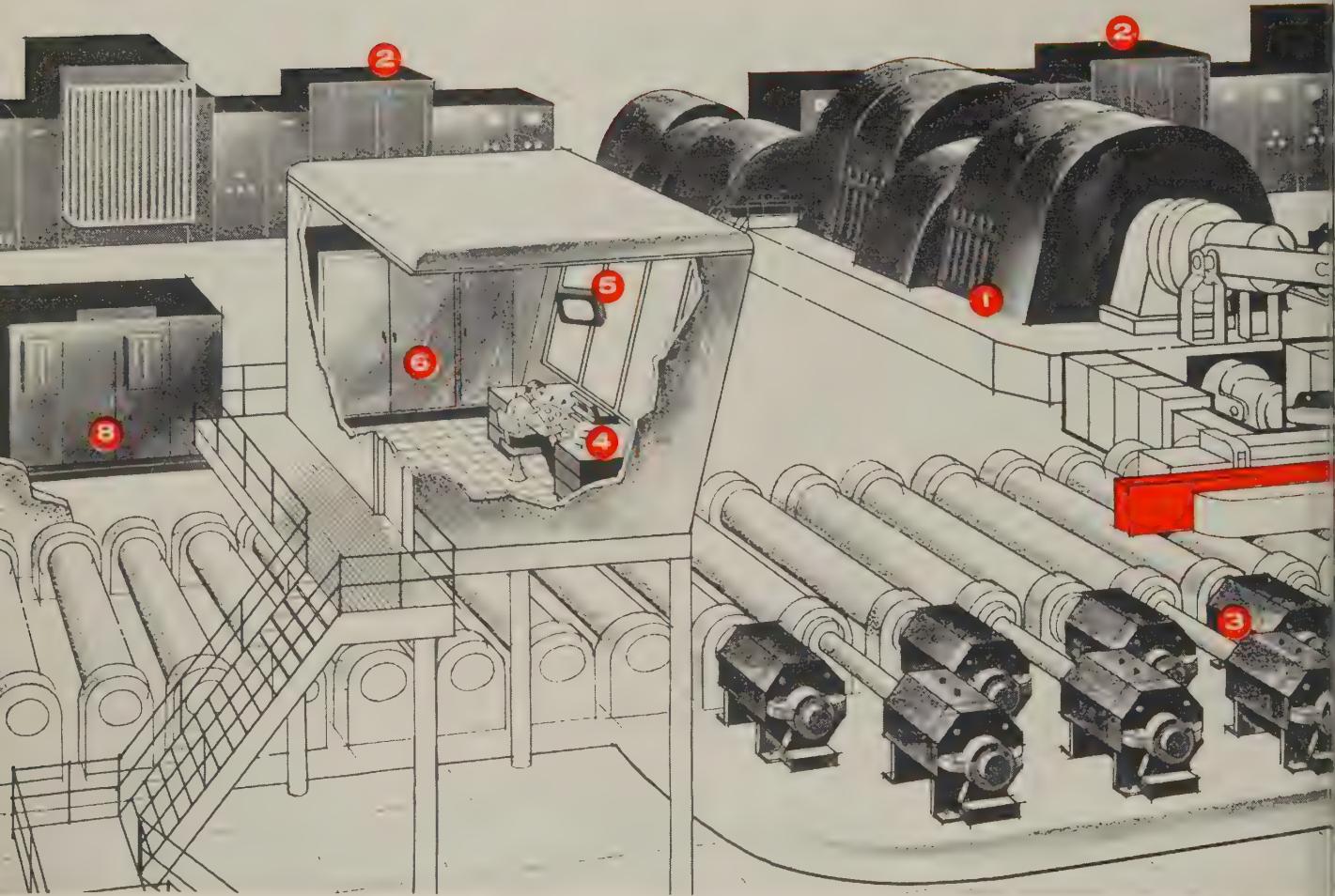
- **When**—No one at Constock will say when regular shipments will begin. The *Methane Pioneer* ship is just finishing her second trip. Bids have not been taken on the full sized tankers; the best guesses are it'll be two to three years before they're ready.

Meanwhile, work is progressing on setting up potential markets. Constock men all over the world are digging for signs of interest—with encouraging results. Typical reaction: "Show us it can be done, and we'll be interested in buying it from you."

Original work on the project started in 1952 when Union Stockyard & Transport began research on the feasibility of shipping liquefied natural gas from the Southeast.

General Electric's new program for Automation through Modernization can help you . . .

REDUCE OPERATING COSTS, MODERNIZE FOR PROFITS



Above is General Electric's version of a completely automated reversing hot mill. While your facility may differ, the products and technology for automation are available from General Electric today.

1. **"TOP-FORWARD"** arrangement of main drive motors combines accessibility and easy maintenance features with reduced installation and construction costs.
2. Either mercury-arc rectifiers or motor-generator sets, depending upon operating conditions, provide reliable d-c power to main drive motors.
3. MD-600 motors power individual rolls, eliminate reduction and bevel gears, lower maintenance.
4. Operator's control console provides finger-tip control of entire mill operation.
5. Closed-circuit TV gives operator visual contact with remote and inaccessible mill operations.

6. Data processing equipment can record data, set up operating guides, and ultimately control the process using the GE 312 general purpose, digital control computer.
7. Main mill control utilizes quick-response **DIRECTO-MATIC** static control to provide specific direction during the short time required for mill reversals.
8. **DIRECTO-MATIC** static program control equipment provides fast, precise control of system operations based on pre-determined schedules.
9. Rugged MD-600 motors provide instant response and minimum of maintenance to the most vital mill operation.
10. Hot metal detectors note when metal is "in zone," initiate next step in operation. This saves rolling time, increases accuracy.

Other manufacturing states have similar problems, but Michigan's have come to a head more quickly. Other industrial regions will want to see what has happened in Michigan and how the state hopes to solve its problems

DRAW A LINE from the top of Michigan's lower peninsula down through the center of the state. It cuts through the capital, Lansing. More important, it's the dividing line for the political and economic conditions at the heart of Michigan's financial crisis and industrial depression. The state is treating the symptoms, but has no quick cures.

• **A State Divided**—To the line's west, the primary businesses are agriculture and tourists. The dominant political party is Republican. Tourists bring in half a billion dollars worth of business each year. They vie with agriculture as the second largest revenue producer. The seven industrialized cities in these areas have a labor force of only 500,000; the state has 2.9 million.

• **Against Itself**—To the east of the line lies Detroit and the auto industry which, with its allied metalworking trades, brought Michigan its "arsenal of democracy" title. Two-thirds of the state's labor force is in the Detroit area and up the narrow "metalworking corridor" through Pontiac, Flint, Bay City, and Saginaw. When Detroit booms, these workers are rich. When cars don't sell, they're poor. Political strength is organized around the Democratic party and the United Automobile Workers.

• **Struggles Against Schism**—Since '49 when Democrat G. Mennen Williams became governor, he has faced opposition from a Republican dominated legislature. For every bill a Republican legislator pushed through, he usually had to support a Democratic project. Republicans often disagreed among themselves. UAW directed Democrats were organized and the Republican majority dwindled. Result: The cost of government soared. So did taxes.

• **Despite High Taxes**—The state levies business, vehicle, sales, and

intangible taxes. Cities and counties collect personal property taxes. In Detroit, the combined city and county personal property tax is almost 5 per cent on 84 per cent of assessed valuation. That's a big bite for plants with heavy investments. Adjusted for inflation, tax revenues rose some 76 per cent in the last nine years. Population increased 24 per cent. Per capita income went up about 40 per cent. Businessmen believe this proves that more of the tax load is being paid by industry.

One example is the business activities tax, which was nonexistent in 1949. It brought in \$61 million last year. Using Michigan as a base of 100, one study shows the average tax on industries is 40 per cent in Illinois, 53 per cent in Indiana, 62 per cent for New York and New Jersey, 44 per cent for Ohio, 73 per cent in Pennsylvania, and 82 per cent in Wisconsin.

• **Lost Businesses**—With population rising faster than the national average (24 vs. 11 per cent), wage rates and taxes among the nation's highest, and market groups becoming scattered, manufacturing industries with heavy employment began consolidating operations, transferring them to other parts of the state, and closing down.

How much industry has entered or left the state is highly controversial and most figures are biased, but the Corporation & Securities Commission reports that 38,500 firms paid franchise fees in fiscal 1957. It adds that 2500 to 3000 new companies were formed that year, but in 1958, only about 1000 companies were organized or moved in.

In '56 and '57, Michigan spent \$199 million for new industrial construction while Indiana spent \$898 million and Ohio, \$921 million. Prof. William Haber, University of Michigan economist, says the state accounted for 57 per cent of the nation's automotive employment in 1949. Last year the figure dropped to 48 per cent. Since World War II, GM has established 14 plants in Ohio. Ford has built nine, and Chrysler now has six manufacturing facilities in Ohio and Indiana.

• **And Fewer Jobs**—Discussing a recent study, Dr. Charles L. Jamison, professor emeritus at the University of Michigan, says: "The state

should have gained 270,663 production jobs between 1947 and 1956 if its industrial growth had kept pace with the average rate. It actually fell behind the average to the tune of 228,136 production jobs." A *Detroit News* survey points out: "As late as 1954, Michigan led all major states in factory employment per capita. In the last three years, however, Michigan has been passed by Ohio and Indiana. In 1957, Michigan's 132 industrial employees per 1000 population dropped substantially under Ohio's 146."

Detroit has suffered most. Area employment in metalworking and transportation (automotive) industries fell from 470,000 to 316,000 between 1956 and 1958. The state's unemployment rose from 6.9 per cent in '56 to 12.2 in '59.

• **Comeback Is Slow**—Michigan slowly is marshaling its forces to hold the industry it has and to win new firms. It needs them to supply jobs to a mounting labor force (2.9 million now vs. 2.85 million in '56). The state's Economic Development Department has laid out a six point program to help businessmen with problems. Example: Encourage local universities to turn out more scientists to attract small scientific companies.

• **More Diversification**—It looks like Michigan's industrial makeup will change. Companies will be smaller, more diversified. They'll be located in smaller cities where local taxes are comparable to national averages. They'll hire nonmanufacturing workers whose wage rates also are more comparable. Chemical, electronic, soft goods, and service industries seem logical candidates.

• **But Less Metalworking**—One thing seems pretty definite. Until wage and tax structures undergo some basic realignment, manufacturers with heavy labor content and sizable plant and equipment investments will not be too interested in Michigan.

Detroit probably will never recover its industrial strength. Some of its labor will have to relocate.

• *An extra copy of this article and one to appear June 1 (on how states are trying to lure new industries) will be available until supply is exhausted. Write Editorial Service, STEEL, Penton Bldg., Cleveland 13, Ohio.*

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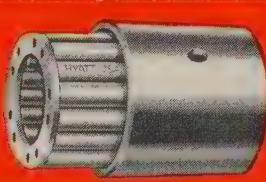
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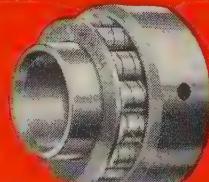
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THE RECOGNIZED

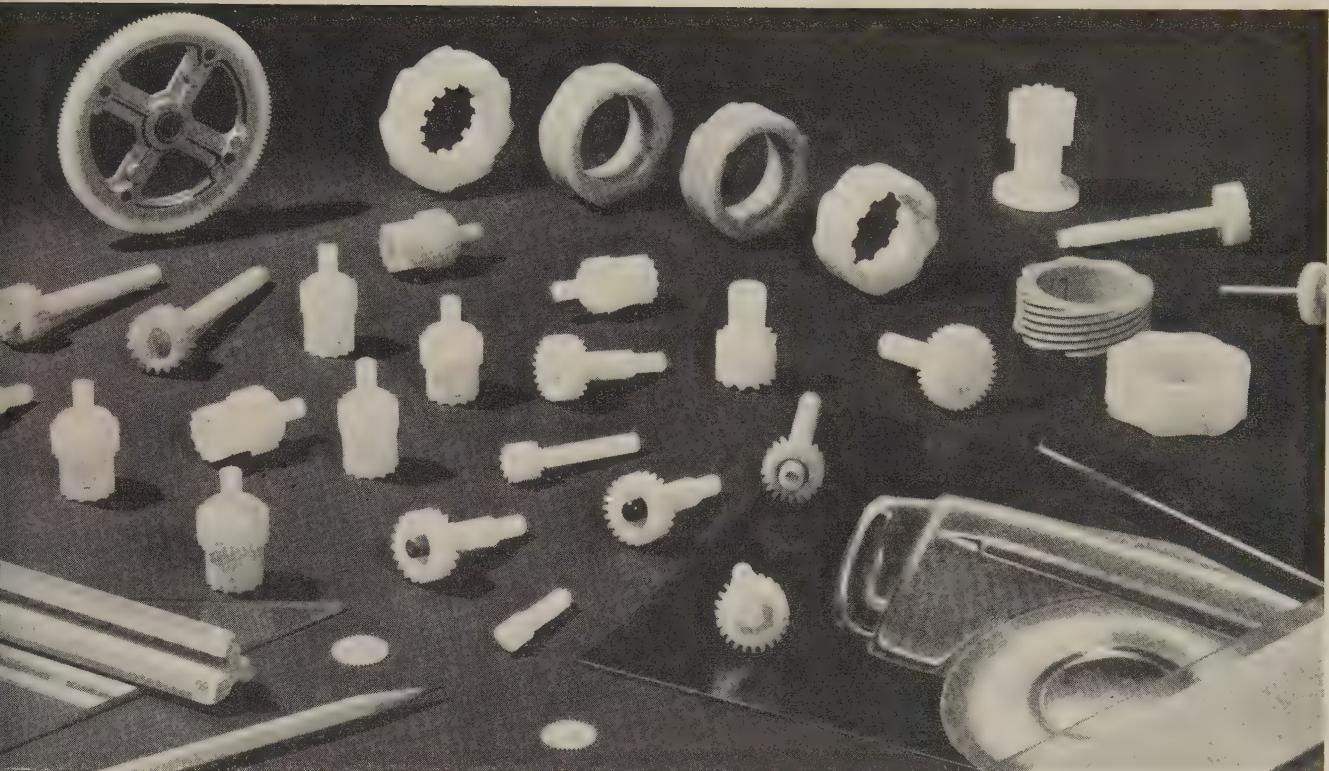
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GM
GENERAL MOTORS

HYATT **Hy-ROLL BEARINGS**

FOR MODERN INDUSTRY



Nylon resin is used for speedometer and windshield wiper gears, as well as other parts. Du Pont says some 250 different parts of Zytel nylon resin are used in 1959 cars. Other automotive uses for plastics include: Bushings for brake and clutch pedals, window cranks, steering columns, door hinges, air suspension parts, dome lamp lenses, door latch wedges, carburetor parts. Delrin instrument clusters can have printed circuitry and color cast in

Du Pont Boosts Plastics for Autos

PLASTICS PRODUCERS are convinced there's a larger market for their products in the cars Detroit will be building over the next ten years. They must convince car designers that plastic parts can be made just as inexpensively as metal parts, and that they'll do the job as well, if not better.

About 2 lb of plastic materials were used in the average car in 1946. Today, the average is about 3 lb, says a spokesman for E. I. du Pont de Nemours & Co. Inc., Wilmington, Del. Du Pont claims 14 automotive applications for its products now; it believes the number will at least double in the next five years.

Can Save—Dr. John D. Young,

manager of Du Pont's Plastic Sales Div., says the automotive industry saved \$3 million (70 cents per car) through the use of his company's plastic products in 1958. He estimates it can save \$45 million by 1964. To accomplish this, Du Pont is approaching the market with much the same pitch aluminum companies used when they first started touting the light metal's advantages. The idea is to prove to designers that it's the finished piece price that counts—not the base material cost. The company emphasizes that injection molding and part redesign will cut finishing costs and permit several parts to be combined into a single assembly.

• The Pitch—Says Dr. Young: "In

the late 1940s, nylon resin sold for \$1.60 a pound. The price of Teflon originally was \$18 a pound. Today the nylon molding powder sells for \$1.18 and Teflon at about \$4. Compared with copper, zinc, and brass it's evident that no one would substitute a \$1.18 plastic for a 13.5 cent metal, all things being equal."

But, as Dr. Young points out, all things aren't equal. He adds: "Injection molding is a highly versatile fabrication process which eliminates many, and often all, of the costly finishing processes required when working with other materials. The plastic part usually is ready for service when it leaves the mold. Secondly, plastic engineering materials not only will replace conventional materials, but often will

make possible the elimination of components required in a conventional design." He cites a check valve which originally contained ten parts. Du Pont redesigned it so the valve contained only six parts. Costs were cut 68 per cent.

• **Example** — How can Du Pont's latest plastic product, Delrin, which costs 95 cents a pound, compete with zinc at 13 cents and aluminum at 25 cents? The company uses as an example a typical automotive part (it could be a door handle or carburetor part) that would be produced in quantities ranging from 50,000 to 250,000. The part weighs 2 ounces in Delrin, 3.7 ounces in aluminum and 9.3 ounces in zinc. It's injection molded in plastic rather than diecast in metal.

Assuming only such moderate finishing operations as flash removal, drilling, and reaming are needed on the metal parts, finished per piece costs would be 26 cents for Delrin, 24 for zinc, and 23.5 for aluminum. Du Pont adds that the 95 cent material cost figure is the introductory market price; it expects volume production to bring the cost down to 80 cents. In practice today, partmakers pay closer to 11.5 cents a pound for zinc and 22 cents for aluminum. However, if extensive machining operations requiring jigs and fixtures are needed, the finished cost would be almost double for the cast metal parts compared with the plastic.

• **Materials** — Du Pont is offering five types of plastics whose temperature, strength, and frictional characteristics are highly competitive with diecast metals for many automotive parts:

Lucite, an acrylic resin. It has good optical properties and can be painted or metallized on the reverse side so the coloring shows through, but is not exposed to weather.

Teflon, an extremely high temperature and chemical resistant fluorocarbon resin often used to coat missile wiring. It creates little friction and is a good insulator.

Delrin, an acetal resin. Its best qualities are strength, stiffness, dimensional stability, and temperature resistance.

Zytel (nylon resin). It has better

abrasion and impact resistance than Delrin, but its strength, stiffness and stability characteristics are not quite as good.

Alathon (polyethylene). It's used for coatings because of its flexibility and insulating properties.

• **Markets** — Here's how Du Pont thinks the use of its products will grow in the next five years:

Automotive Consumption (pounds, avg car)

	1959	1964
Lucite	1.8	2.0
Teflon	0.001	1.0
Zytel	0.5	1.5
Alathon	1.0	1.8

• **Future** — Among the new products Dr. Young expects to see are oil pumps, timing gears, and radiator fans made from nylon resins. He thinks Delrin can be used for nonlubricated ball joints, steering column and instrument cluster housings. It's already rumored that two GM hardtops will have one piece, molded plastic headliners in 1960. Du Pont cites that as a possible use for Delrin.

Lucite grilles could replace aluminum and zinc diecast jobs. They may be less costly and definitely will be corrosion resistant. They could be metalized or molded in

U. S. Auto Output

Passenger Only

	1959	1958
January	545,757	489,515
February	478,484	392,112
March	576,085	357,049
April	578,825	316,503
4 Mo. Totals	2,179,151	1,555,179
May	349,474	
June	337,355	
July	321,053	
August	180,324	
September	130,426	
October	261,696	
November	514,099	
December	593,920	
Total	4,243,526	

Week Ended	1959	1958
Apr. 18	135,934	73,219
Apr. 25	133,987	58,664
May 2	118,059	78,434
May 9	134,763	78,506
May 16	135,822†	87,407
May 23	135,000*	86,589

Source: *Ward's Automotive Reports*.

†Preliminary. *Estimated by STEEL.

clear or custom color resins. Ford reportedly has such a development project underway.

Rosy Glow in Forecasts

Continued economic expansion now confirms earlier predictions that car sales will reach 6 million units including imports, asserts George P. Hitchings, manager of Ford Motor Co.'s Economic Analysis Dept. He adds that the steel industry may cause a temporary leveling off in the third quarter because of its present high levels of activity.

"Steel production will drop close to current consumption rates in the third quarter even if a strike does not occur. The related drop in payrolls and profits dependent on steel production will also act as a temporary drag on the total economy," he declares.

Expanding on Mr. Hitchings' forecasts, C. R. Beacham, vice president and assistant general manager of Ford Div., says car sales in the next two quarters will be 35 to 40 per cent ahead of year ago periods. He adds that fourth quarter sales should be much better than any fourth quarter since 1955.

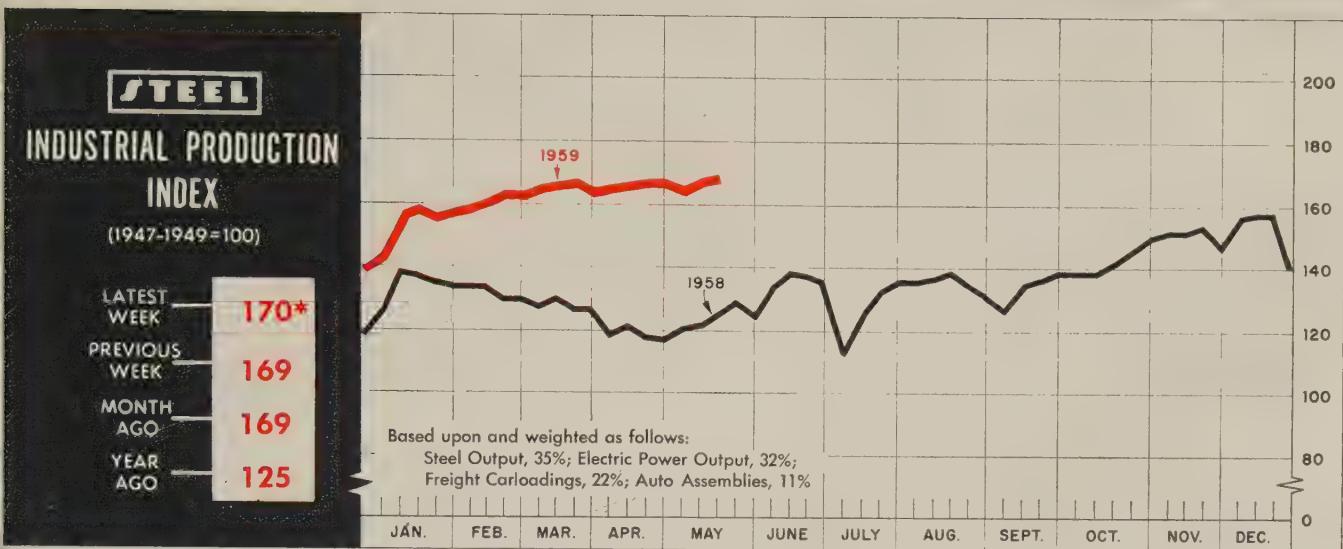
Continues Mr. Beacham: "The amount spent for new automobiles will rise to \$21 billion annually by 1965, up from \$15 billion spent in 1957. By the end of the decade, automobile expenditures will reach \$26 billion."

Exhaust Notes

• Studebaker-Packard Corp. reports Lark sales are 221 per cent ahead of the year ago period. The company delivered 12,547 cars in April vs. 3904 units in April, 1958.

• Chrysler's Dodge Div. says its four door body styles are making a revival. Four door sedans are taking 43.8 per cent of this year's production compared with 39.7 per cent last year and 38.9 per cent in 1957. Four door hardtops are up from 11.2 to 12.1 per cent.

• The annual replacement bill for mufflers is \$290 million, reports Allegheny Ludlum Steel Corp., Pittsburgh. It's now testing stainless steel mufflers that may last a lifetime. The company claims present mufflers corrode in 15,000 miles or 18 months.



*Week ended May 16.

Capital Goods Reinforce Upturn

CAPITAL GOODS, a new favorite in the recovery sweepstakes, finally broke away from the post and is expected to make this a faster race than most observers had expected. The front runners—autos, construction, steel, and appliances—are still setting a fast pace, but the smart money is on the late starter to make a new race out of it.

By now there is no question that the recovery portion of the economic upturn is a thing of the past. We already are in new territory as far as nondurable and many consumer durable goods industries are concerned. STEEL's industrial production index above has indicated this since late in the first quarter. Now the Federal Reserve Board's production index confirms it. Rising 2 points above the record set only a month before, the index stood at 149 (1947-49 = 100) in April (see table and graph, Page 112).

• Capital Fillip—This third consecutive 2 point rise in the FRB index came at a time when many economists felt the economy was beginning to lag. Forces mainly responsible for the initial upsweep were leveling off. The big difference in April: The sudden, almost dramatic revitalization of capital goods industries, spurred probably by the near-record showing of first quarter profits.

Here is what the records show for a few of those industries:

• Industrial Furnaces—New orders worth \$13,328,000 made April the biggest month since February, 1956, reports the Industrial Heating Equipment Association Inc. Along with a moderately good March, the

bulge in business lifted the first four months of this year 95 per cent above the corresponding period of 1958. Cumulative orders for induction heating equipment through April are 129 per cent above the year-ago total. (See Page 91.)

• Material Handling—Bookings for

BAROMETERS OF BUSINESS

INDUSTRY

INDUSTRY	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Production (1,000 net tons) ²	2,674 ¹	2,631	1,523
Electric Power Distributed (million kw-hr)	12,650 ¹	12,659	11,257
Bituminous Coal Output (1,000 tons)	8,415 ¹	8,275	6,250
Crude Oil Production (daily avg—1,000 bbl) ...	7,150 ¹	7,200	6,262
Construction Volume (ENR—millions)	\$415.6	\$403.3	\$435.4
Auto, Truck Output, U. S., Canada (Ward's)	172,325 ¹	170,993	113,998

TRADE

Freight Carloadings (1,000 Cars)	685 ¹	677	561
Business Failures (Dun & Bradstreet)	265	275	279
Currency in Circulation (millions) ³	\$31,505	\$31,369	\$30,810
Dept. Store Sales (changes from year ago) ³	+14%	+6%	-4%

FINANCE

Bank Clearings (Dun & Bradstreet, millions) ..	\$23,026	\$26,179	\$21,570
Federal Gross Debt (billions)	\$287.1	\$285.2	\$274.9
Bond Volume, NYSE (millions)	\$30.0	\$31.9	\$22.6
Stocks Sales, NYSE (thousands of shares)	18,115	18,994	13,308
Loans and Investments (billions) ⁴	\$94.3	\$94.7	\$92.0
U. S. Govt. Obligations Held (billions) ⁴	\$28.9	\$29.3	\$30.5

PRICES

STEEL's Finished Steel Price Index ⁵	247.82	247.82	239.15
STEEL's Nonferrous Metal Price Index ⁶	222.4	222.1	195.5
All Commodities ⁷	119.6	119.6	119.5
Commodities Other than Farm & Foods ⁷	127.9	127.9	125.4

*Dates on request. ¹Preliminary. ²Weekly capacities, net tons: 1959, 2,831,486; 1958, 2,699,173. ³Federal Reserve Board. ⁴Member banks, Federal Reserve System. ⁵1935-39=100. ⁶1936-39=100. ⁷Bureau of Labor Statistics Index, 1947-49=100.

WELDING

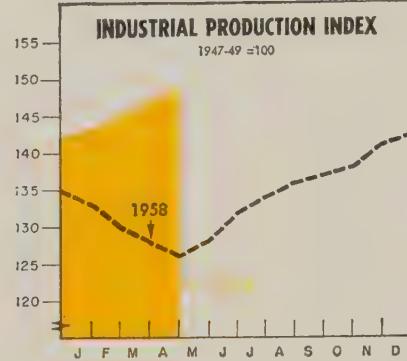
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Machine Welding

THE BUSINESS TREND



	(Seasonally adjusted)					
	Total Production	Primary Metals	Metal Fabricating	1959	1958	
Jan.	143	133	125	100	166	159
Feb.	145	130	138	95	168	153
Mar.	147	128	146	91	170	150
Apr.	149*	126	152*	86	172*	146
May	128	...	91	...	148	144
June	132	...	103	...	151	148
July	134	...	102	...	154	151
Aug.	136	...	109	...	156	153
Sept.	137	...	113	...	155	152
Oct.	138	...	123	...	155	152
Nov.	141	...	123	...	163	158
Dec.	142	...	123	...	165	159
Avg	134	...	105	...	155	150

Federal Reserve Board. *Preliminary.
Charts copyright, 1959, STEEL.



Material Handling Institute Inc.

this equipment reached the highest level in 23 months, declares the Material Handling Institute Inc. The new order index for March hit 146.36 (1954 = 100), marking the third monthly rise in succession (see graph, above). Dollar volume of new orders in the first quarter of 1959 is nearly 30 per cent of the total new business for all of last year.

• **Foundry Equipment**—This industry has pulled one of the biggest surprises of the economic comeback. After setting a nine year high of 237.1 (1947-49 = 100) in February, the March index of new orders reported by Foundry Equipment Manufacturers Association was an impressive 166.6 (1947-49 = 100). With the exception of the record, this level had not been reached since August, 1957. The monthly average in the first quarter is 177, higher than the annual average for any year since the current benchmark was established in 1953.

• **Industrial Supplies**—Between February and March, the seasonally adjusted index of the American Supply & Machinery Manufacturers' Association Inc. experienced the steepest rise since the recession's low

point was reached. It bounded to 221 (July, 1948 = 100), equaling the all-time high set in January, 1957.

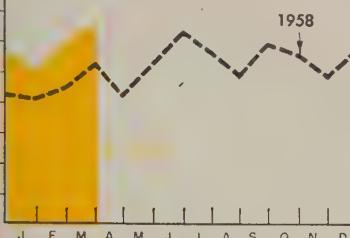
• **Trucks**—Output of trucks by American makers has hit the 27,000 unit mark two weeks running, marking the first time that figure has been reached since early December, 1956. At the current rate, output for 1959 could be 1.2 million units, the highest since 1955, says *Ward's Automotive Reports*. In fact, production for the first five months of 1959 is slightly ahead of the corresponding period in 1955.

The influence of those revitalized capital goods industries can be seen in April's employment figures. The net gain of production workers in all manufacturing plants was 16,000. But the gain in durable goods industries was 56,000, completely wiping out the losses in non-durable goods factories.

GNP Sets Another Record

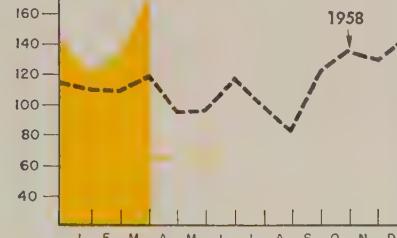
This strengthening of the capital goods sector of the economy was at least partially responsible for pushing the gross national product to another record in the first quarter. Pegged originally at an annual

ELECTRIC REFRIGERATORS FACTORY SALES IN THOUSANDS OF UNITS



National Electrical Mfrs. Assn.

HOUSEHOLD ELECTRIC RANGES IN THOUSANDS OF UNITS



National Electrical Mfrs. Assn.

rate of \$465 billion, the government revised the figure to \$467 billion. Manufacturers, faced with a possible steel strike at a time when orders for their goods were rising faster than expected, increased their inventory buying, mostly of steel. The buildup had been estimated at an annual rate of \$4 billion in the first quarter, but it turned out to be \$5.7 billion.

Inventory Well in Hand

James Dawson, vice president and economist for the National City Bank of Cleveland, suggests it might be worthwhile to keep an eye on the inventory level for a clue to future recessions. Even with the buildup in the first quarter, he claims the ratio of inventories to shipments is relatively low at 1.46. He points out that it was 1.60 in mid-1953 and again in mid-1957 before the economy began to soften. "As the ratio advances and once more approaches the 1.60 level, it should be considered a warning that chances of an economic setback are increasing. The warning should be considered particularly insistent if, at the same time, manufacturers' inventories are going up relative to orders and backlog," he claims.

Index Nudges High Again

STEEL's industrial production index continues to inch its way up to record levels. After failing by 2 points to reach the preliminary reading of 171 (1947-49=100) for the week ended May 9, the index again made an effort to set a new mark by rising to a preliminary 170 for the following week. Once again it was the failure of the steel industry to meet its schedules which made the difference between preliminary and final readings. However, the industry will try again, scheduling operations at about 95.5 per cent of capacity, good for a little over 2.7 million net tons of steel for ingots and castings during the week ended May 24.

All other elements of the index showed minor improvement. Auto and truck output for the week ended May 16 beat the previous week by 200 units, setting a 1959 high of 162,443 units. Output of electric power is rising gradually above the 12.6 billion kw-hr mark, indicating that its seasonal slump is at an end. Railroad freight carloadings are now above the 680,000 mark and will continue to expand until the steel industry contract deadline of June 30.



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JAMES R. BROWN JR.
Dresser dir.-manufacturing

FRANK COOLBAUGH
Climax Molybdenum president

DONALD E. BEATON
Twin Disc Clutch post

Maurice F. Dufour was elected executive vice president, Freeport Nickel Co., New York. He is also vice president of the parent company, Freeport Sulphur Co., and is in charge of construction of its nickel-cobalt project scheduled to be in production later this year. Here are the new officers of Moa Bay Mining Co., Freeport Nickel subsidiary, which will operate the Cuban mine and concentrating plant: Richard V. Colligan, president; Balfour F. Darnell, vice president-general manager; Robert L. James, vice president-legal; Rudolph J. Kruger, vice president-finance; Daniel W. Machon, vice president-administrative.

Horrest H. Golden was made manager, Alloy Div., Allied Steel Products Corp., Kenilworth, N. J. He was with Alloy Fabricators Div., Continental Copper & Steel Industries.

Robert Cameron was appointed vice president, Pittsburgh Bridge & Iron Works, Pittsburgh. He was consulting engineer.

George Konkol fills the new post of general manufacturing manager,arts Div., Warren, Pa., Sylvania Electric Products Inc., subsidiary of General Telephone & Electronics Corp. He was manufacturing manager-wire, weld and metal stampings operations.

Lawrence C. Felder was elected president, Virginia Metal Products Inc., Orange, Va., subsidiary of Chesapeake Industries Inc. He succeeds Fred I. Courtney, resigned.

James R. Brown Jr. was made director of manufacturing, Dresser Industries Inc., Dallas. He was with Baldwin - Lima - Hamilton Corp., most recently serving as works manager.

Frank Coolbaugh was appointed president, Climax Molybdenum Co., New York, division of American Metal Climax Inc. He succeeds Weston Thomas, recently elected executive vice president of the parent company. Mr. Coolbaugh was vice president-western operations of Climax previous to its merger in 1957 with American Metal Co. Ltd. He then became a vice president of the merged company.

Jan Mueller was named manager of jet engine component manufacturing, American Metal Products Co., Detroit.

J. E. Peterson was named sales manager-universal joints by Dana Corp., Toledo, Ohio. He succeeds W. H. Schomburg, recently promoted to assistant general sales manager.

Ray Chaney was named vice president and director of sales, Randall Graphite Bearings Inc., Lima, Ohio. He was sales manager.

Newton J. Friese Jr. was elected a vice president of General Strapping Corp., New York. He continues as sales manager.

Russell Herig was elected vice president-sales, Beaver Pipe Tools Inc., Warren, Ohio.

Donald E. Beaton was named director of manufacturing, Twin Disc Clutch Co., Hydraulic Div., Rockford, Ill. He was assistant general manager of the division.

William J. Hamley was made production control supervisor of A. M. Byers Co.'s South Pittsburgh, Pa., plant. He formerly held a similar post at Alwac Computer Div., Eltronics Inc., Hawthorne, Calif.

George D. Rice was named to the new post of vice president-manufacturing, Humphrey Inc., San Diego, Calif. He was vice president-manufacturing, Kin Tel Div., Cohu Electronics.

John P. Bennett was made manager of marketing research, a new post at I-T-E Circuit Breaker Co., Philadelphia. He was manager of market planning at the BullDog Electric Products Div., Detroit.

John R. Crossgrove was made specialist-marketing research in General Electric Co.'s Foundry Dept., Schenectady, N. Y.

Murray Wachsman, director of manufacturing, was named vice president-manufacturing, Lewy Mfg. Corp., Long Island City, N. Y. Sheldon Detwiler was made vice president-research and development. Harry Appelstein was appointed vice president-treasurer.

P. C. Fourney was made assistant works manager, Union Carbide Metals Co., division of Union Carbide Corp., New York. Mr. Fourney was manager of the Alloy



CLIFFORD SANDS

Alcoa rigid containers posts



PHILLIP C. ALTHEN



E. H. GOT

U. S. Steel administrative vice presidents-production



OSCAR PEARSON

Works, and is succeeded by John Winterhaler.

Aluminum Co. of America, Pittsburgh, appointed Clifford Sands industry manager for rigid containers; Phillip C. Althen, technical manager, both newly created posts. Mr. Sands has been located at Alcoa's Cleveland district sales office. Mr. Althen was manager, packaging section, Sales Development Div. at New Kensington, Pa.

Boston Gear Works, Quincy, Mass., appointed William J. Johnson manager-field sales; Edward P. Williams, manager-internal sales.

C. Melvin Smith was made chief engineer, Stainless & Strip Div., Detroit, **Jones & Laughlin Steel Corp.**

Aristoloy Steel Div., Copperweld Steel Co., opened a district sales office in Pittsburgh, to be headed by John O'Connor III. In the division's Detroit office, James D. McKinnon was named district sales manager. Max G. Manker was made Chicago district sales manager; Frank F. Gray, New York district sales manager; J. Robert Waters, Philadelphia district sales manager.

Charles J. Betz was named outside sales manager of industrial fasteners, **Standard Pressed Steel Co.**, Jenkintown, Pa. He is replaced as inside sales manager by Donald J. Morris.

Walter J. Erdell was named district sales manager in charge of **Damascus Tube Co.**'s new Chicago district sales office. He joined Damascus in 1952, and has served as sales manager since 1955.

United States Steel Corp., Pittsburgh, appointed two administrative vice presidents in its production department. E. H. Gott heads central operations (steel and coal); Oscar Pearson heads steel producing divisions. Mr. Gott succeeds Stephen M. Jenks, recently made executive vice president-engineering and research. Mr. Pearson succeeds Mr. Gott. E. B. Speer succeeds Mr. Pearson as vice president-operations. R. W. Graham, former general superintendent, Homestead District Works, Munhall, Pa., replaces Mr. Speer as general manager, operations-steel.

Crane Co., Chicago, reappointed George F. Burley vice president-sales, and established four sales posts: Clarence E. Watson, general manager-atomic energy sales; Darrell R. Nordwall, general manager-branch sales; Charles H. Lovelace, general manager-engineering sales; R. W. Lindsay, general manager-wholesaler sales.

Stimmel Winch Co. Inc., Long Island City, N. Y., elected Herbert Frie vice president.

At **General Dynamics Corp.**'s General Atomic Div., San Diego, Calif., Dr. E. C. Creutz was appointed vice president-research. H. B. Fry and C. A. Rolander Jr. were named vice presidents. Mr. Fry continues as director of administration. Mr. Rolander's responsibilities will include the area of program development.

George Heard was elected president, **Safety First Supply Co.**, Pittsburgh. He was manager of Dravo Corp.'s Contract Dept. Mr. Heard succeeds George S. Shull, named chair-

man. Davis E. Houston was named vice president-general manager; Philip A. Lascher, vice president sales.

Walter Hochschild was elected president, **American Metal Climax Inc.**, New York. He succeeds Hans A. Vogelstein, who resigned the presidency for reasons of health, and was elected chairman of the finance and investment committees. Mr. Hochschild retains his posts as vice chairman of the board, and chairman of the executive committee.

A. Donald Moll, assistant sales manager, **Minneapolis Electric Steel Castings Co.**, Minneapolis, will in addition become manager of technical services and sales of high alloy and stainless steel castings.

L. F. Heckmann was elected vice president-sales, **Union Metal Mfg. Co.**, Canton, Ohio. He was general sales manager.

E. C. Titcomb was made sales manager, **Kin Tel Div.**, San Diego, Calif., **Cohu Electronics Inc.** He succeeds R. T. Silberman.

William B. Bergen, former executive vice president, was elected president and principal operating officer of **Martin Co.**, Baltimore. George M. Bunker remains as chairman and chief executive.

Bruce L. Dwiggins was made production superintendent of **Michigan Chemical Corp.**'s new magnesium oxide plant in Port St. Joe, Fla.

A. T. Nielsen was appointed plant manager of **Cowles Chemical Co.**'s operations at Skaneateles Falls, N. Y. He was with Chas. Pfizer &



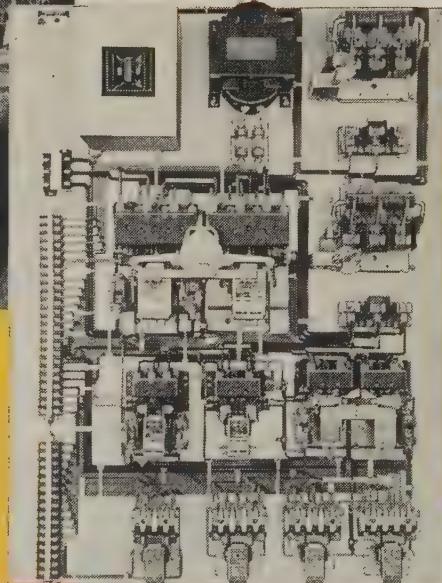
SQUARE D PRESS CONTROL

*Built the Way
You Want It!*

Square D control is used by virtually every stamping press manufacturer in the country—and is approved by the three largest automobile manufacturers.

What's behind this preference for Square D? Biggest reason, we believe, is *completeness* of line which enables us to *custom build* to individual requirements, using *standard* control components. Actually, that has a bearing on a lot of things—including delivery, safety, uninterrupted production, maintenance parts standardization, plus field engineering service.

On the next press you buy, specify **SQUARE D CONTROL**.



above • typical Square D press control panel, designed and built to customer specifications, using standard components

NOW...EC&M PRODUCTS ARE A PART OF THE **SQUARE D LINE**

SQUARE D COMPANY





SAMUEL R. PARRY
Combustion Eng. v.p.-mfg.



CHARLES R. MUENGER
Dollin production post



LARNED S. WHITNEY JR.
Stanley-Humason v.p.



DR. ITALO S. SERVI
Kelsey-Hayes metals research



JACK H. COX
Calco Div. manager



JOHN V. VANDEN BOSCHE
McGregor-Michigan chief eng.

Co.'s Groton, Conn., plant as manager in charge of production of chemicals and vitamins.

Dr. Italo S. Servi was made director of research, Metals Div., Kelsey-Hayes Co., New Hartford, Conn. He was manager-research group at Union Carbide Metals Co.

Jack H. Cox was named manager, Calco Div., Armco Drainage & Metal Products Inc., Middletown, Ohio. The division includes California and most of Nevada and Arizona. Headquarters is in Berkeley, Calif. He succeeds L. W. Hanson, retired. John M. Robertson succeeds Mr. Cox as manager of drainage and allied products sales. Howard L. White replaces Mr. Robertson as chief sales engineer.

F. H. Sherman was elected president and general manager, Dominion Foundries & Steel Ltd., Hamilton, Ont. A. G. Wright was made vice chairman-finance; F. A. Loosley, vice chairman-research and development.

Samuel R. Parry, former vice president-general manager, Chattanooga Div., Combustion Engineering Inc., New York, was appointed vice president-manufacturing for the entire company. Harry J. Bolwell was made general manager-Chattanooga Div.

Charles R. Muenger was appointed production plant manager, Dollin Corp., Irvington, N. J. He was director-engineering and research at Schultz Die Casting Co., Toledo, Ohio.

Larned S. Whitney Jr. was appointed vice president-general manager, Stanley-Humason Inc., Forestville, Conn., subsidiary of Stanley Works, New Britain, Conn. He was formerly co-ordinator of hand tool plants outside of New Britain.

General Motors Corp. consolidated its Fabricast Div. plants into the Central Foundry Div. **George A. Zink**, formerly general manager, Fabricast Div., continues as manager of Fabricast plants in Bedford and Jones Mills, Ark., and will also serve as manager of light metals programs for the expanded division. **Elmer E. Braun**, former works manager, Central Foundry Div., assumes the title of divisional manager-ferrous metals operations. **Carl A. Koerner**, former manufacturing manager, Central Foundry, was made director of sales and engineering for the expanded division. **Edgar A. Wondracheck**, former Fabricast manufacturing manager, was made plant manager of the Bedford, Ind., plant, with the Jones Mills plant reporting to him.

Conrad Kunze was appointed assistant to the executive vice president, Convair Div., San Diego, Calif., General Dynamics Corp.

OBITUARIES...

James A. Lee, 57, director of procurement, Automotive Div., American Motors Corp., Detroit, died May 9.

Charles Penhaligan, 57, auditor for Dow Chemical Co., Midland, Mich., and a member of the finance committee, died May 8.

Whitley Collins, 61, president, Northrop Aircraft Inc., Beverly Hills, Calif., died May 12.

Hot-Strip Mill Kicks Off Record Republic Expansion

REPUBLIC STEEL CORP. has announced a \$375 million capital improvement program, largest in the company's history. The expenditure is to be spread over a four year period. The first major project will be a new, 56 in., hot strip mill at its Warren, Ohio, works. Monthly capacity: 145,000 tons. Cost: \$45 million.

Construction is scheduled to start as soon as possible, with operations beginning in the latter part of 1960. The present 42 in. mill (monthly capacity: 85,000 tons) will continue production until that time. It will then be dismantled and its area used for additional finishing facilities.

• **Versatile**—The new mill can produce numerous types of sheets, including special grades of stainless being developed for aircraft and missiles, as well as carbon steel sheets and strip, reports T. F. Patton, president. The mill will perform most of Republic's hot rolling of stainless steel. Exceptions: Sheets over 48 in. will continue to be rolled on the 98 in. mill at Cleveland. The mill will also turn out silicon sheets used in electrical equipment and can roll sheets from low alloy steels and titanium.

Components: Heating furnaces, a scale breaker, a reversing roughing stand, six finishing stands, a runout table, and two coilers. The operation is equipped to run at high speeds, with steel leaving the last finishing stand as fast as 2300 ft per minute.

A new building with over 300,000 sq ft of floor space is to be erected to house the mill.

Details of other projects in the program have not been released.

Pacific Mill Expands

Bethlehem Pacific Coast Steel Corp. has completed a \$25 million expansion and modernization of its Seattle plant. The program was begun in December, 1956. New pro-

duction facilities include: Two electric arc steelmaking furnaces which will boost the plant's annual capacity to 420,000 ingot tons; eight soaking pits; a 32 in. blooming mill; a 12 in. bar mill.

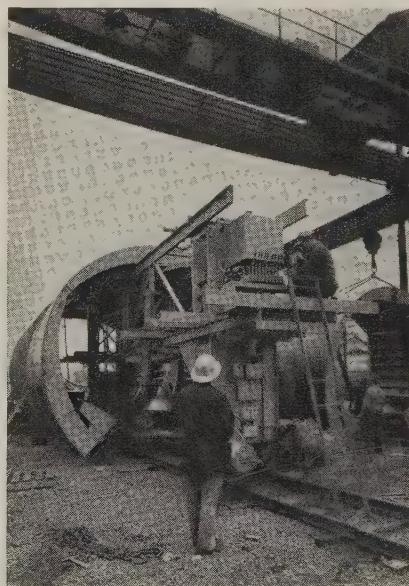
The only major installation remaining from the pre-1957 plant is a 22 in. rolling mill which has been modernized. A new, 3 high mill for rolling plates up to 30 in. wide will be installed this fall.

Ford To Modernize Plant

Ford Motor Co. will spend over \$1.4 million for equipment, modernization, and long range improvement of its Buffalo stamping plant during 1959.

Structural Capacity Upped

Bethlehem Fabricators Inc., Bethlehem, Pa., has completed a \$750,000 plant expansion program, boost-



THESE TELESCOPIC STEEL FORMS (diameter: 17 1/2 ft) and mechanized traveler will be used in the construction of a 1 ft thick concrete lining for an 11 mile water pressure tunnel in Reading, Calif. A shop setup by Blaw-Knox Co. in Pittsburgh insures perfect on-the-job workability of the units

ing its annual structural steel capacity from 35,000 to 50,000 tons. Features include: A self-contained "rush job" fabricating shop; a new girder fabricating shop (bridge girders up to 150 ft long can be produced); mobile, high speed machine tools which reduce work movement.

Tyson Expands Again

Tyson Bearing Co., Massillon, Ohio, has started its second, \$1 million expansion project. It will be completed by September, doubling the plant's manufacturing area. The first phase of another \$1.2 million program was completed last month. Tyson is a division of SKF Industries Inc., Philadelphia.

Linde to Build Plant

Linde Co., a division of Union Carbide Corp., New York, will build a liquid hydrogen plant at Torrance, Calif. Construction will begin late this year. The move was prompted when the National Aeronautics & Space Administration awarded its liquid hydrogen contract to Linde. Annual plant capacity: 3.3 million lb.

Fansteel Plans New Plant

Fansteel Metallurgical Corp., North Chicago, Ill., will build a rectifier plant, adding 20,000 sq ft to its facilities. Capacity: 30,000 silicon power rectifiers per day. Target date for completion: Jan. 1, 1960.

Smith-Erie Adds Line

Smith-Erie Div., A. O. Smith Corp., Milwaukee, has purchased the micron fuel filter business of Burks Co., Detroit. All machinery, tools, and inventory of the business will be moved to the Smith-Erie facilities at Erie, Pa., from the Burks plant at Lapeer, Mich.

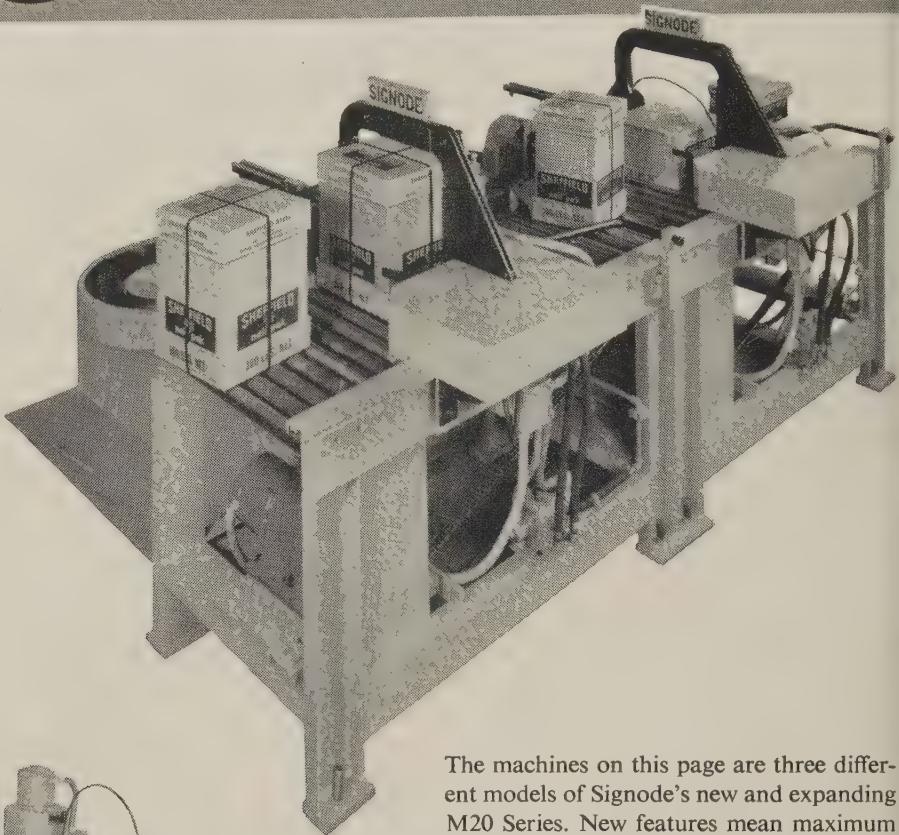
Kaiser Builds Plant

Kaiser Aluminum & Chemical Corp., Oakland, Calif., will build a plant at Midland, Mich., to expand its refractory magnesia operations. Chief product: High purity periclase for use in basic

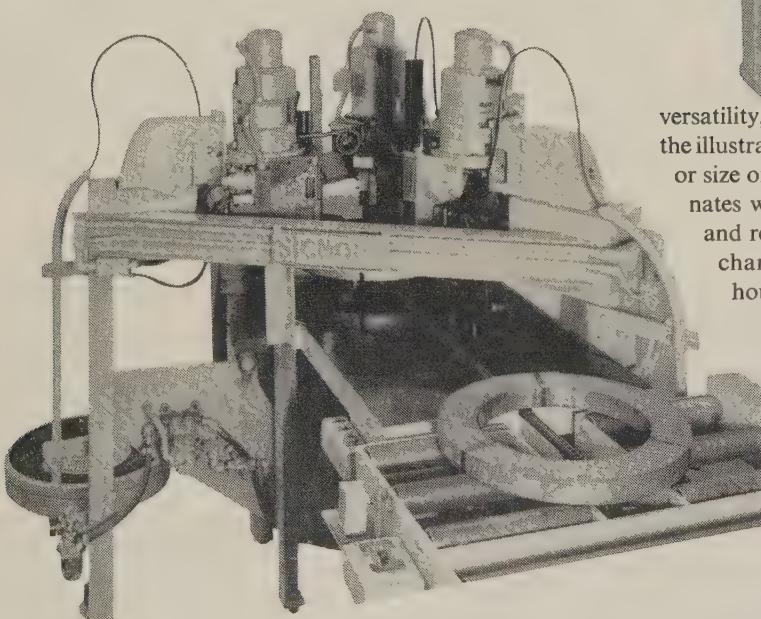
(Please turn to Page 124)

Signode machines

Operatorless cross-strapping of nail cartons in mixed sizes.

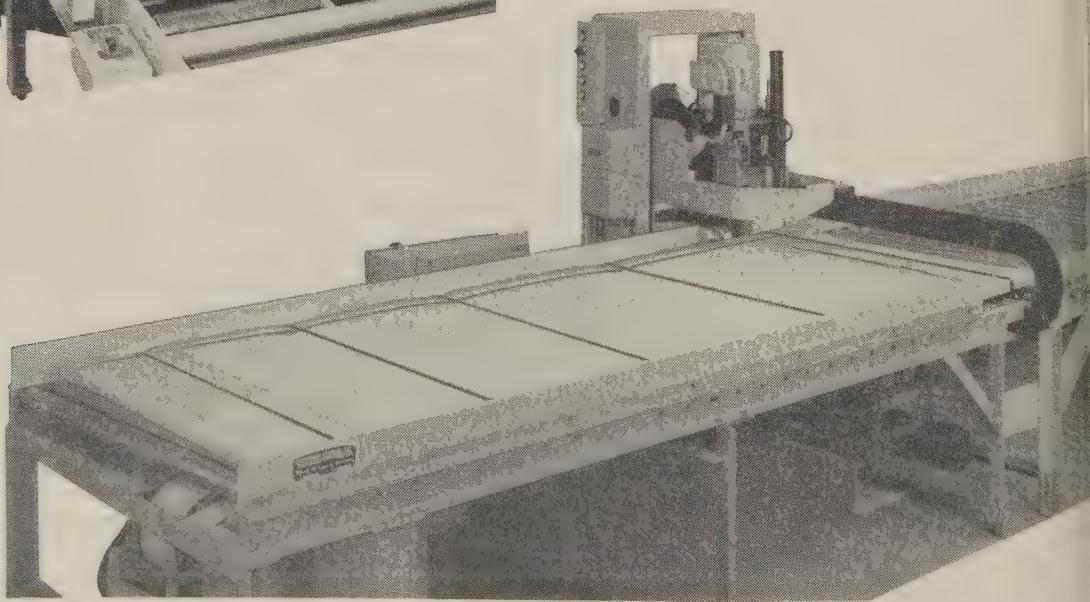


Operatorless strapping of strip steel coils, 3 straps simultaneously, up to 1,000 coils per hour.

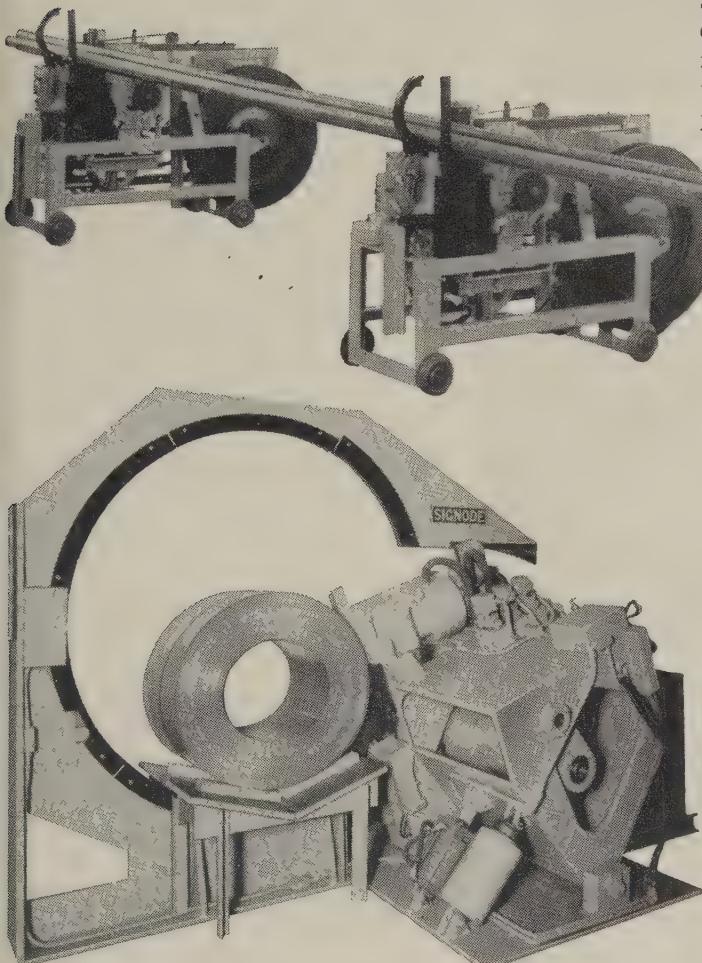


Operatorless strapping of plastic sheet packs. Number of straps per pack is optional.

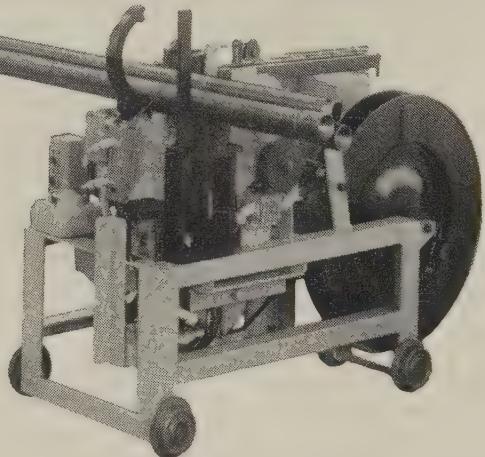
The machines on this page are three different models of Signode's new and expanding M20 Series. New features mean maximum versatility, long trouble-free life, and minimum maintenance. As the illustrations show, automatic strapping of practically any shape or size of bundle or container is possible. Overlap control eliminates waste of strap. Tension is easily and accurately pre-set, and requires no further adjustment unless type of package is changed. Vital working parts are protected by a sealed housing and run in a bath of oil. With an M20, strapping can be applied vertically or horizontally...any type of Signode PSM grade strapping can be used, in sizes from $\frac{3}{8}$ " to $\frac{3}{4}$ ". Seals can be lithographed with your trademark in color. Operation can be completely automatic (operatorless), or semi-automatic (push-button controlled).



reduce packaging costs



Push-button strapping of pipe. This "work horse" M2 Series is in use strapping cartons or bundles of nearly every kind of product quickly and dependably. MS2-BR machines, as illustrated, apply three straps simultaneously to a bundle of conduit, rods, tubing, or small dimension pipe in four seconds.



Operatorless circumferential strapping of aluminum coils. Strapping is automatically centered on coils from 30" to 72" O.D. Capacity is 300 to 400 coils per hour. Other MH Series machines put 300 to 360 straps per hour on hot or cold strip steel coils or rod or wire coils...have been proved dependable in as much as ten years of the hardest kind of steel mill service.

Every day hundreds of plants prove their economy and dependability

Signode machines strap faster and at less cost—and do it dependably, with uniform tension on every strap. Tensionable steel strapping is low in cost to begin with...and high in strength to ship with. Signode has unparalleled experience in building and applying over 30 different types of these machines. Improved flow, less waste, better handling, safer transit, and lower costs nearly always result. Signode Service includes operator training and fast mechanical service on a local basis, nationwide. All of these machines are available on either an annual rental or single payment basis. It will pay you to talk to the Signode man near you, or write:



First in steel strapping

SIGNODE STEEL STRAPPING CO.

2645 N. Western Avenue, Chicago 47, Illinois

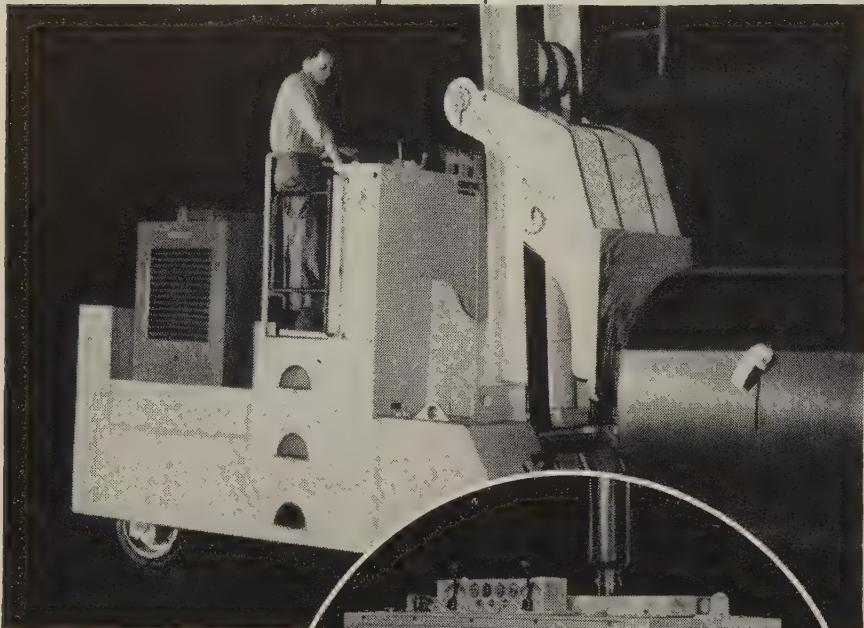
Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

New Diesel-Electric "Power Package"

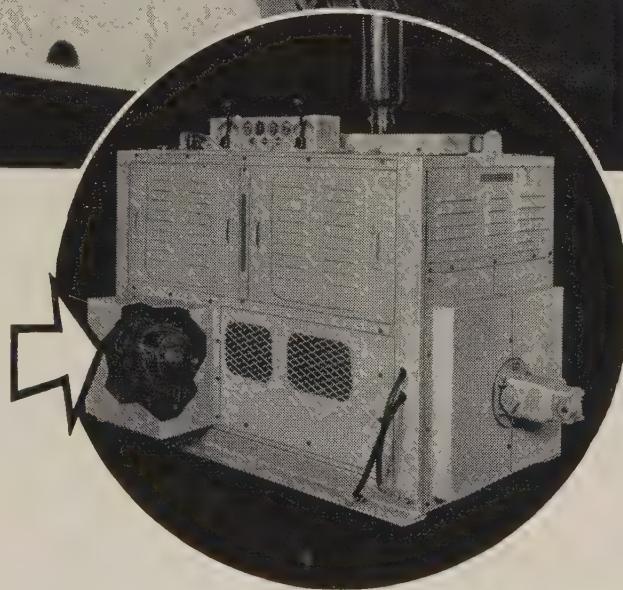
Does Both Jobs Economically

① GENERATES
TRUCK
MOTIVE POWER

② DIRECT-DRIVES
HYDRAULIC
PUMP



Ready-Power Model RD9DX Diesel-Electric Unit with "power package" equipment. Tractive power is supplied on demand by a specially designed generator with separate excitation which produces only the energy required to do the job.



Ready-Power makes diesel-electric power doubly effective with a newly developed "power package" designed specifically for use with its "RD" Series Power Units. This remarkable new concept allows the unit to operate at *constant speed*, no load to full load, yet supplies full range of tractive power on demand and produces continuous hydraulic power without need for intermediate electric motors. The last word in simplicity, this new "power package" eliminates contactor failure, minimizes maintenance, assures maximum operating economy for electric trucks up to 200,000 lb. capacities. Write for complete information.

SEE READY-POWER ON DISPLAY AT THE MATERIAL HANDLING
EXPOSITION, JUNE 9-12, BOOTH 1134

READY-POWER

The READY-POWER Co., 3824 GRAND RIVER AVE., DETROIT 8, MICH.

(Continued from Page 121)

refractories. Initial annual capacity: 45,000 tons of periclase.

Construction is scheduled to begin within two months. Cost: \$3 million.

The facilities will provide raw material to Kaiser's Columbian, Ohio, basic refractories plant which is being expanded for the second time to meet increased market demands in the East and Midwest.

Forms Pump Division

Owatonna Tool Co., Owatonna, Minn., has formed a division to manufacture hydraulic pumping units and handle the hydraulic segment of the regular OTC tool and maintenance equipment line.

Will Build Periclase Plant

E. J. Lavino & Co., Philadelphia, plans to build a plant at Freeport, Tex., to produce high grade magnesite (periclase), a component for the firm's refractory products. Dow Chemical Co. will supply magnesium hydroxide from regular production at its Freeport plant. The periclase will be shipped to Lavino's refractories plant at Plymouth Meeting, Pa., and to a refractories plant which will be built in the Chicago area. Lavino expects to spend about \$3 million on the Freeport plant and will spend considerably more on planned step-by-step enlargements.

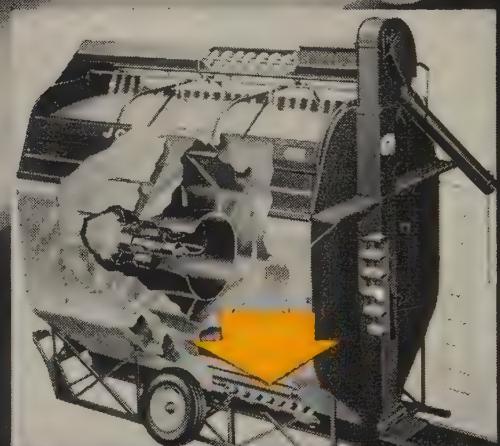
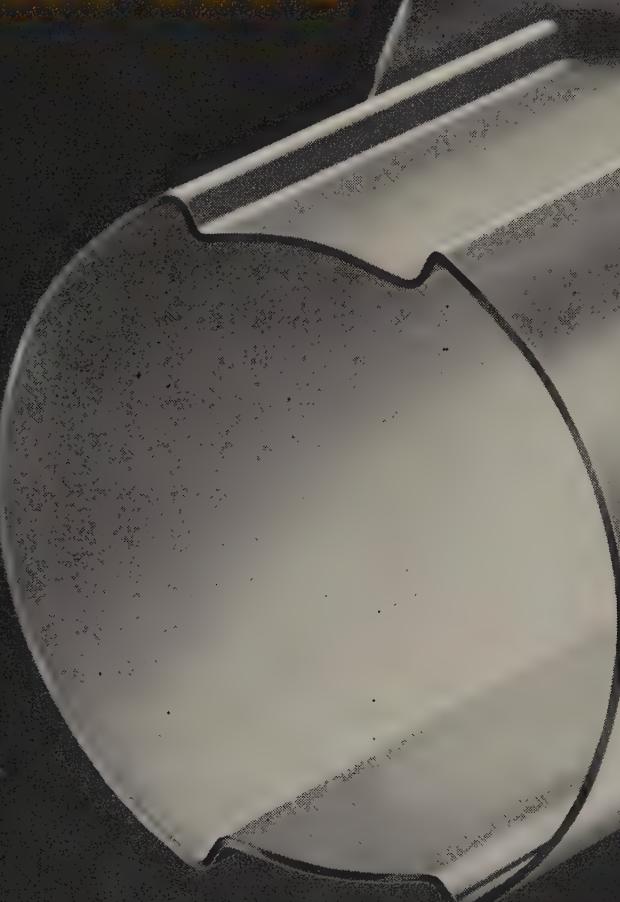
Clevite to Build Plant

Clevite Corp., Cleveland, will build a \$3 million transistor and diode manufacturing plant at Waltham, Mass. It will contain about 125,000 sq ft of space and is scheduled for operation early next year.

Acme to Use L-D Process

Kaiser Engineers, a division of Henry J. Kaiser Co., Oakland, Calif., has licensed Acme Steel Co., Chicago, to utilize the L-D process patent rights for the production of steel in Acme's newly completed facilities at Riverdale, Ill. The \$32 million semi-integrated plant includes two hot blast cupolas; two

AGAIN-



Revere helped "fit the metal to the job"

... AIDING JOHN DEERE IN DESIGNING ITS FIRST GRAIN DRYER

The greatest bugaboo the farmer has to contend with in harvesting grain is the weather. If it is bad and the grain passes its peak of yield he loses time and money. The new JOHN DEERE 458 Grain Dryer makes it possible for the farmer to harvest when his grain reaches peak yield.

The Dryer was designed from the ground up to be superior in every respect yet competitive in price. In order to assure even feeding of the grain from the start, two metering rolls at the base of the machine are used (Cutaway above shows position of rolls in machine while large illustration is section of the Revere Welded Steel Tubing used for the 44 $\frac{1}{4}$ " long rolls).

In designing this Dryer JOHN DEERE Engineers considered various kinds of materials, finally specifying Revere Welded Steel Tubing, cold rolled 4 $\frac{1}{2}$ " OD x .065" wall, in the special grooved shape you see above, as being the best material available. Although difficult to fabricate, by most mills, Revere encountered no problems because of its vast experience in producing welded steel tubing in various shapes, sizes and gauges... from $\frac{1}{4}$ " to 5" OD round, with walls from .028" to .250" depending on the

In fact it was the availability of the tube, plus the experience of making it in large sizes that decided DEERE Engineers to specify Revere. Performance of the tube, JOHN DEERE tells us, has been highly satisfactory.

What are *your* steel tubing needs? More than likely Revere can help you too. It costs nothing to inquire.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
Rome Manufacturing Company Division
Rome, N.Y.

WHEELABRATOR[®] STEEL SHOT

cuts abrasive costs for
ALL TYPES OF FOUNDRIES



Malleable Foundry Saves \$12,000 Annually

Cuts Abrasive Consumption in half

Savings of \$1,000.00 a month in abrasive cost are being made at Albion Malleable Iron Co., as a result of switching from a malleable type abrasive to Wheelabrator Steel Shot.

This foundry operates a battery of 8 Wheelabrator Tumblasts, cleaning a variety of regular and pearlitic malleable castings. Consumption of the malleable shot in these machines was at the rate of 20 tons a month. Since changing to Wheelabrator Steel Shot this has been decreased to 10 tons a month, for an annual saving of \$12,000.00 on abrasive alone.

More than 1200 firms have standardized on Wheelabrator Steel Shot and are recording impressive savings. Consistently harder, with greater resistance to breakdown, it lasts longer in use, cleans better, and reduces total cleaning costs.



Write today for Bulletin 89-B
— free — for detailed
information on Wheelabrator Steel Shot



WHEELABRATOR
CORPORATION

509 South Bykit Street

Canadian Offices: Scarborough (Toronto) — Montreal

Mishawaka, Indiana

50-ton L-D furnaces capable of producing up to 600,000 ingot tons of steel annually; soaking pits; blooming, slab, and billet mills; an air pollution control system; and other appurtenant specialty steelmaking facilities.

Starts Oxygen Plant Work

Air Reduction Pacific Co., San Francisco, a division of Air Reduction Co. Inc., New York, has broken ground for a \$3 million plant in Richmond, Calif. It will produce liquid oxygen, nitrogen, and argon.

Bridge Erection Starts

Bethlehem Steel Co., Bethlehem, Pa., has set the first steel for the \$90 million Throggs Neck bridge, connecting Bronx and Queens, N. Y. The bridge will have a length, including approaches, of 12,310 ft.

Dow Forms New Group

Magnesium Products Sales Dept., Dow Chemical Co., Midland, Mich., formed an electrochemical and chemical sales group. Robert L. Featherly is manager of the group which will be responsible for sales of magnesium products for various nonstructural applications. They include extruded anodes for water heaters and other cathodic protection applications; and extrusions and strip for magnesium batteries.

Klaas Machine to Move

Klaas Machine & Mfg. Co. is erecting a 20,000 sq ft plant on Schaaf Road near the cloverleaf intersection of Routes 17 and 21, south of Cleveland. The company will continue the same services of contract manufacturing, custom welding, machine shop work, special machinery, conveying equipment, and the EMCO power press.

Buy Verona, Pa., Plant

Specialty Steel Products Inc., East Pittsburgh, Pa., purchased the Verona, Pa., plant of American Steel Foundries, Chicago, and will

ake possession of the property
une 1.

Firms Change Names

Cycleweld Chemical Products Div. is the new name of Cycleweld Cement Products Div., Chrysler Corp., Trenton, Mich. Sumner B. Twiss has been appointed president.

Raytheon Co. is the new name of Raytheon Mfg. Co., Waltham, Mass.

Hamilton Foundry & Machine Co., Hamilton, Ohio, has become **Hamilton Foundry Inc.** Work is beginning on a \$150,000 office addition and modernization program.

Stovkis Multiton Corp. is the new title of Stovkis-Edera Inc., Port Washington, N. Y.

Mid-Century Instrumatic Corp., New York, is now **Computer Systems Inc.**

NEW OFFICES

A new branch office and warehouse was opened by **Besly-Welles Corp.**, South Beloit, Ill., at 3224 Union Pacific Ave., Los Angeles 33, Calif.

Consolidated Systems Corp., newly formed subsidiary of Consolidated Electrodynamics Corp., Pasadena, Calif., has established regional offices in Washington, Atlanta, and Monrovia, Calif.

NEW ADDRESSES

Eastern Stainless Steel Corp. moved its district sales office to 0800 Center Ridge Rd., Cleveland 6, Ohio.

Century Electric Co., moved its district office to 6835 W. Higgins Rd., Chicago 31, Ill.

B. C. Ames Co. moved its district office to 668 Pallister Ave., De-

(Please turn to Page 132)



Old Method — time consuming, requires two men



La Deau Method — takes just one man, is six times more efficient!

NEW TURNOVER CRADLES PALLETIZE COILS WEIGHING TO 40,000 LBS. IN SECONDS

Producers or users of coiled materials can now palletize coils weighing from 3000 to 40,000 pounds in 14-40 seconds with the completely automatic La Deau TURNOVER CRADLE. You save up to 400% in storage efficiency, 600% in labor efficiency, and eliminate elongated coils and dangerous band breakage. If you handle *only a carload of coiled materials per month*, you can pay for a TURNOVER CRADLE in about a year, with labor savings alone. Reason: the fully portable Cradle lets one man handle as much material in one hour as two men usually handle in three hours!



FORK TRUCK SETS COILS AND PALLET ON EDGE



CRADLE TIPS BACK, BASE REVOLVES, FRONT TO BACK



CRADLE ENDS 90° ROLL OVER, BASE COMPLETES 180° TURN



PALLETIZED COILS ARE READY TO FORK

Write today for descriptive literature

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ANACONDA 20-10 POLYETHYLENE DENSHEATH® CONTROL CABLE

APPLICATION:

Long Life, All-Thermoplastic, General-Purpose and
Station Control Cable for Utilities and Industrials.

INSTALLATION:

Aerial, Conduit, Tray, Duct or Direct-Burial, AC
or DC Circuits, Wet or Dry Locations.

FEATURING:

CONDUCTOR INSULATION	20 Mil Polyethylene
CONDUCTOR JACKET	10 Mil Densheath
OVERALL JACKET	Heavy Wall Densheath
FULL COLOR-CODING	Prompt, Positive, Permanent
OPERATING TEMPERATURE	75°C
VOLTAGE RATING	600V

ANACONDA WIRE & CABLE COMPANY
25 Broadway, New York 4, N. Y.

ANACONDA OFFERS ONE CONTROL CABLE FOR PRACTICALLY ALL 600-VOLT APPLICATIONS: ANACONDA THERMOPLASTIC 20-10 CONTROL CABLE!

**Polyethylene—Densheath* (PVC)
construction provides superior fea-
tures, makes possible new econo-
mies and improved service through
standardization.**

Anaconda—after testing a wide range of designs—recommends 20-10 Control Cable as today's superior all-purpose thermoplastic cable for 600-volt service. Here is a standard control cable for practically every 600-volt application—one that simplifies your ordering, stocking, installing, makes possible new economies in time and money.

Anaconda 20-10 Control Cable has been designed to meet all the exacting requirements for

the highest quality control cable. Each conductor is insulated with 20 mils of polyethylene, then covered with 10 mils of Densheath (PVC). This construction combines the full IPCEA recommended insulation thickness (30 mils for 600 volts) with the flame retardance, excellent color coding and abrasion-resistance of PVC.

This composite design results in a control cable that can be used in virtually all 600-volt control applications. It can be installed aerially, in conduits, trays or ducts, and directly buried.

For 1000-volt rating, this same design is recommended, with the thickness of Polyethylene and Densheath (PVC) increased to 30 and 15 mils respectively.

Write for descriptive bulletin DM-5844 for complete technical details on Anaconda 20-10 Control Cable. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

*Reg. U.S. Pat. Off. 59226

ASK THE MAN FROM

ANACONDA®

FOR 20-10 CONTROL CABLE

**ANACONDA WIRE & CABLE COMPANY
25 Broadway, New York 4, New York**

SM

Gentlemen:

Please send me a copy of Bulletin DM-5844 containing full technical information on Anaconda 20-10 Thermoplastic Control Cable.

Name.....

Company.....

Address.....

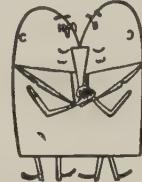
City.....Zone.....State.....

(Concluded from Page 129)

troit 2, Mich. Cecil C. Sprung is the new manager.

The New Orleans warehouse for Chase Brass & Copper Co. is now at 1000 S. Jefferson Davis Pkwy.

J. O. Ross Engineering Div., Midland-Ross Corp., has moved to 730 Third Ave., New York 17, N. Y.



CONSOLIDATIONS

Midwest Piping Co. Inc., St. Louis, purchased Houston Pipe & Steel Inc., Houston, a subsidiary of Sparton Corp., Jackson, Mich.

General Cable Corp., New York, bought Indiana Steel & Wire Co., Muncie, Ind., for about \$11.5 million. Indiana Steel will be operated as a subsidiary, producing steel wire used in power transmission and communications.

Landers, Frary & Clark, New Britain, Conn., will purchase the fabricating division of Plume & Atwood Mfg. Co., Thomaston, Conn., upon authorization of stockholders to issue 85,000 shares of Landers stock for the acquisition. Cash payment of \$1 million is also involved.

Hevi-Duty Electric Co. will merge with Basic Products Corp. Hevi-Duty is a subsidiary of Basic. Both firms are in Milwaukee.

Ducommun Metals & Supply Co., Los Angeles, acquired Barde Steel Co., Seattle, service center for hot-rolled carbon steel, cold-finished bars, cold-rolled and galvanized sheets.

Schlage Lock Co., San Francisco, acquired LCN Closers Inc., Princeton, Ill., maker of hydraulic door closing devices. It's the third company acquired by Schlage in the past year.

Cal-Dak Co., San Gabriel, Calif., maker of tubular steel housewares, has purchased Plas-Tex Corp., Los Angeles, producer of polyethylene plastic housewares.



the STRIPPIT FABRICATOR

WORK PIECE — Electronic Chassis —
10" x 14" — 23 holes — 5 sizes —
4 different shapes — 4 corner notches

SETUP TIME — 9.3 minutes

PRODUCTION RUN — 5 pieces

PRODUCTION TIME PER PIECE — 2.8 minutes

For short or pilot runs—model shop and experimental work—no other single machine can match the production capabilities and profit potential of the Strippit Fabricator.

PUNCHES — any round or shaped hole up to 3½" diameter in sheet material — up to ¼" mild steel.

NOTCHES — 90° corners — rectangular, radii, vee and special shape edge notches — up to 1/8" capacity in mild steel.

NIBBLES — straight line or contour shearing up to a 38" diameter circle, at 165 strokes per minute, 1/8" mild steel.

ACCURATE, QUICK-SET GAUGING — a unique, multiple-stop system permits exact positioning of the work to any layout specifications in seconds instead of minutes.

QUICK-CHANGE PUNCHES AND DIES — changed from one size to another in less than 20 seconds — within easy reach in labeled, built-in file drawers.

EASY CONVERSION — to a production punching unit by adding the Strippit Duplicator for high speed production of hundreds of pieces — and the Dupl-O-Scope to punch Duplicator templates from a drawing, layout or sample part.

WRITE TODAY — for Catalog 10 AA and an actual demonstration right at your own plant of the capabilities of this high-profit fabrication system, by a Strippit Mobile Demonstration Unit.

WALES STRIPPIT INC.
210 Buell Road • Akron, New York

In Canada: Strippit Tool & Machine Company, Brampton, Ontario



May 25, 1959

RIVET STANDARDS SET—Dimensional standards for semitubular rivets were agreed upon by members of the Tubular & Split Rivet Council at a recent meeting in Chicago. Purpose: To encourage the use of standard sizes in product design. Copies are available from the Council at 53 Park Pl., New York, N. Y.

HOT, HOT GREASE—A new high temperature lubricant called kiln car grease works well at 1200° F, says E. F. Houghton & Co., Philadelphia. It's based on fine particle graphite.

CHEAPER CHROME—You can get anhydrous chromic chlorides for \$2 a pound, a tenth of its former cost, says Salem-Brosius Inc., New York, because of technical advances it has made in refinement. The chemical is used for chromizing, vapor or gas plating, and flame metallizing.

NEW FUEL FOR ROCKETS—Liquid hydrogen is the latest proposal for chemically fueled rockets. Dr. J. C. Moise, Aerojet-General Corp., Azusa, Calif., says it gives better performance than other easily used fuels.

ELECTRONICS FOR LILLIPUTIANS—A breakthrough in molecular electronics involving germanium crystals may result in systems 1000 times smaller and lighter than today's, says the Air Force. Westinghouse Electric Corp., Pittsburgh, has a \$2 million development contract.

ELECTRONIC READER—High speed electronic systems that read pictures or printing are not far off, says RCA, New York. Its Princeton, N. J., laboratory is developing a device for that purpose.

PLUTONIUM AIDS FOUNDRYMAN—Moisture in sand is accurately measured by a device which

uses a small amount of plutonium sealed with beryllium powder in a stainless capsule. James H. Smith, general manager, General Motors' Central Foundry Div., Danville, Ill., says: "We have been able to maintain a far more exact moisture content this way."

CUTS DIE COST 70 PER CENT—A new method being patented is said to chop die making costs radically. The developer, Payne Tool & Engineering Co., Springfield, Ohio, says the dies replace conventional types and will blank up to 1 million pieces in 1 in. mild steel before resharpening or replacement. Dies are made of a standard metal alloy.

BETTER FORGING DIE—A new castable forging die operates efficiently at 1600° F, says Armour Research Foundation, Chicago. It has also developed a high temperature lubricant for use with the die. Benefits: Better quality, closer tolerances, lower costs.

ARMY NEEDS AIR AGE DESIGNS—Contractors thinking in terms of Army markets must remember that requirements call for light, airborne equipment which will do a heavyweight job. It's all part of today's over-all war concept that stresses extreme mobility, says Maj. Gen. H. N. Toftoy, Aberdeen Proving Grounds, Md.

ELECTROSLAG WELDER—A new welding device based on the Russian electroslag method can make superior buttwelds up to 20 in. thick in one pass. The machine, called Vertomatic, is made by Arcos Corp., Philadelphia. Advantages: No edge preparation, greater speed, less current, fewer welding rods, and less flux.

HEAT FOR TRUCK CABS—An experimental catalytic device for radiant heating of truck cabs is said to burn LP fuel more efficiently than current techniques. The unit will have local outdoor applications as well, says Oxy-Catalyst Inc., Wayne, Pa.



Meet the Winners Of STEEL's Cost Crisis Awards

These metalworking managers were honored for their outstanding use of capital equipment to achieve lower unit production costs

A FOUNDRY achieved a productivity boost worth \$103,815 a year. A metal fabricator saved enough to trim his product price nearly 18 per cent. Another company got its \$10,000 investment back in the first year.

Those success stories, and others like them, were singled out by 196 judges (all metalworking managers) in STEEL's 1958 Cost Crisis Competition as the country's outstanding examples of optimum use of capital equipment.

To each of the winning companies, STEEL's editors presented an inscribed Atmos perpetual motion clock. The clock award pays tribute to managers at all levels for creating a climate in which plans and proposals can be translated into production efficiency.

Each of the managers who submitted the winning entry was pre-

sented a framed Award Certificate as recognition of his contribution to his company.

The ten winners are:

Pioneer Industries Inc., Sioux City, Iowa

Radiation Counter Laboratories Inc., Skokie, Ill.

General Foundry & Mfg. Co., Flint, Mich.

Technicraft Laboratories Inc., Thomaston, Conn.

Studebaker-Packard Corp. (foundry), South Bend, Ind.

Cambridge Wire Cloth Co., Cambridge, Md.

Electric Steel Foundry Co., Portland, Oreg.

Reliance Electric & Engineering Co., Control Div., Cleveland

Eclipse Pioneer Div., Bendix Aviation Corp., Teterboro, N. J.

Eaton Mfg. Co., Axle Div., Cleveland

Presentations have been made to all winners except Studebaker-Packard Corp.

The second annual STEEL Cost Crisis Awards Competition is underway.

Entrants will tell how they beat the Cost Crisis through more efficient use of materials.

Four areas are being explored:

1. The substitution of a tailored shape for standard mill products, or vice versa.
2. The use of a standard purchased material instead of a special, or vice versa.
3. The standardization of two or more separate purchases into one.
4. The substitution of one alloy for another of the same basic material.

Your entry can be a winner. Write today for your Cost Crisis Awards Kit. Address: The Cost Crisis Editor, STEEL, Penton Bldg., Cleveland 13, Ohio.



 COST CRISIS AWARDS 

Eaton Mfg. Co., Axle Div. Cleveland

John C. Virden, Eaton's chairman and president, admires his company's award from Editor Walter J. Campbell (right). On the left, winner R. E. Wilbert, methods supervisor, and R. C. Ochs, general manager, Axle Div., hold the awards. At Eaton, a custom transfer system is saving \$38,436 annually



 COST CRISIS AWARDS 

Eclipse Pioneer Div., Bendix Aviation Corp. Teterboro, N. J.

Assistant Factory Manager William J. Doerr, who made three equipment changes that save \$17,589 a month, looks on as Roy H. Isaacs, division general manager (center), receives the company award from John S. Morgan, associate managing editor



 COST CRISIS AWARDS 

Pioneer Industries Inc. Sioux City, Iowa

Looking at the article that won the award for Pioneer Industries are Sam Kaplan, company president, and Iowa's governor, Herschel C. Loveless. Holding the article is Vance Bell, associate managing editor, who presented the awards. The article was submitted by L. F. Kohl, general superintendent, Pioneer Industries

**Reliance Electric
& Engineering Co.
Control Div., Cleveland**

For the application of a turret press
that saves \$2252 a month,
Reliance's award is presented by
Irwin H. Such, editor-in-chief,
to William R. Hough, (on right),
vice president-engineering
and operations group vice president.

Award winners:

W. J. Nemeth, methods engineer,
and R. J. Krivacek,
manager-quality control



COST CRISIS
AWARDS

**Radiation Counter
Laboratories Inc.
Skokie, Ill.**

STEEL's Campbell, congratulates
Dr. Ernest Wakefield, president,
(right) on the company's application
of a fabricator duplicator
that cut hole punching costs.

The award winner
is Vernon Brown, plant manager



**Electric Steel Foundry Co.
Portland, Oreg.**

Jack B. Sieforth,
director of work simplification
(second from left),
receives his award
from Associate Editor Ross Whitehead.

J. J. Davis, vice president (left),
and H. M. Gowing,
public relations manager,
also offer their congratulations.

Inspection changes brought
a productivity gain
worth \$103,815 a year





COST CRISIS
AWARDS

**Technicraft
Laboratories Inc.
Thomaston, Conn.**

Turret lathe modifications cut part costs 35 per cent and won awards for (left to right) J. R. Nye, president, Robert W. Witty, production engineering supervisor, and A. R. Anderson, vice president. R. F. Huber, machine tool editor, presented the awards



COST CRISIS
AWARDS

**Cambridge Wire Cloth Co.
Cambridge, Md.**

President E. N. Evans (left) Henry Murphy, plant engineer (right) accept the awards for production innovations that cut labor costs 50 per cent, boosted productivity 75 per cent. STEEL's Irwin H. Such made the presentations



COST CRISIS
AWARDS

**General Foundry
& Mfg. Co.
Flint, Mich.**

Mechanization of the firm's cupola charging system cut labor costs 41 cents a ton and brought awards to O. E. Sundstedt, president, (left) and W. Arthur Coakes, plant engineer (right). STEEL's Huber congratulates them

Kold-Lube Cuts Costs 11% at Kelvinator

American Motors Corp.'s appliance division finds the dry coating saves on die life and cleaning costs



Roll hardness and speed control the application of Kold-Lube at AMC's Kelvinator Div. plant, Grand Rapids, Mich.



Coated sheets come out of the drying oven at less than 150° F. They can be stacked without sticking and stored up to seven weeks without corroding

ADOPTION of a dry coat drawing lubricant has enabled American Motors Corp.'s Kelvinator Div. to top 11 per cent off its fabricating

costs in stamping appliance cabinets. The Grand Rapids, Mich., plant is realizing a 20 per cent savings in cleaning operations. Scrap

losses have been reduced 22 per cent due to better die life and easier maintenance.

The process is H. A. Montgomery Co.'s Kold-Lube system which leaves a transparent, residual dry film averaging 150 milligrams per square foot of surface to be coated. The water soluble lubricant does not require heated cleansing or coating solutions. Coated sheets come out of quick dry ovens between 135 and 150° F. They can be stored indoors 90 days without corroding—the coating does not deteriorate in that time. The coated metal will not skid or block when stacked. In some cases the compound permits the use of commercial quality instead of higher priced drawing quality steels.

- **Use Spreads**—Kelvinator was the first plant to use the Kold-Lube process. It went into operation in February, 1958. Since then, the Detroit lubricant firm has established lines for GE's Hotpoint Div., Chicago; Whirlpool-Seeger Corp.'s, Evansville, Ind., plant; C. M. Hall Lamp Co., Detroit; GM's Fisher Body Div. plant, Grand Rapids, and others. Chrysler Corp. is installing one coil and one sheet coating line in its Twinsburg, Ohio, stamping plant which will operate at 200 fpm. Kelvinator's experience shows how the process works.

- **Process**—Preblanked sheets are run through a stretcher leveler which also cleans the metal surfaces. Chemical controls are not required. The cold solution is composed of one part Kold-Lube cleaner to four parts water. Kelvinator formerly used kerosine for cleaning. The steel does not have to be completely clean for coating, but excess mill oil must be removed. AMC has found that the cleaner the steel, the better it works.

Next step: Sheets are conveyed to a special roll coater made by

Specifications Kold-Lube DB-2311

(A liquid concentrate of soaps and synthetic polymers)

Specific Gravity	1.01
Weight per gallon	8.4 lb
Viscosity	300 centistokes @ 70°F
pH	7.2 (Hydron paper)
Odor	Neutral
Diluent	Water
Coverage	4,000 sq ft/gal
Humidity	Slightly Hygroscopic

Advantages

- Increased production.
- Reduction in scrap.
- No interference in welding.
- Reduction in die maintenance.
- Progressive die lubrication.
- Reduces steel quality and gage requirements.
- Indoor corrosion protection.
- Simplified inspection and removal.
- Reduction in labor and product inventory.

Murray Way Corp., Birmingham, Mich., or Gassway Corp., Chicago. The lubricant, containing 30 per cent active ingredients and 70 per cent diluents, is fed into a sump, then pumped up over the doctoring rolls at room temperature. Again, no chemical control is necessary. The amount of compound to be applied is determined by roll hardness, roll adjustments, and material viscosity.

Dries Quickly—Coming out of the rolls, the sheets are automatically fed into a drying oven. Steel moves through the dryer at 60 to 70 fpm. The drying process takes about 30 seconds. The coated sheets come out of the oven under 150° F; they can be handled easily by machine operators. They are stacked on pallets ready for the press line.

Kelvinator's equipment will handle hot and cold rolled sheets, and enameling iron up to 60 in. wide and from 22 to 16 gage. They

represent 95 per cent of the steel the division processes. Only a few odd shaped blanks that won't go through the coater are not Kold-Lubed.

Cleans Easily—After stamping, parts are automatically conveyed through an alkaline degreasing bath. Before the Montgomery process was installed, a heavy duty standard alkaline cleaner was used. Kelvinator's chemical laboratory reports the dry lubricant requires a less concentrated cleaner (Montgomery recommends $\frac{1}{4}$ ounce per gallon). The division is saving 20 per cent in cleaning costs alone and parts come out cleaner.

Savings have also resulted from longer die life and less maintenance on dies and stamping presses.

Downtime is reduced as much as 25 per cent. For example, Kold-Lube permits a 25,000 press run on a 28 in. door panel without requiring dies to be checked and read-

justed. Another benefit to Kelvinator: Working conditions have improved because operators find the dry coated steel easier and more pleasant to handle.

Experiments—Currently, the division is experimenting with reduction of gage and changing from drawing to commercial quality steel. The plant has made some small production runs with commercial quality sheets, but the material was hand-picked in selected lots from the mill. Commercial quality material is now ordered; an inspector selects higher quality coils for Kold-Lubing and shunts the other steel to less critical stampings.

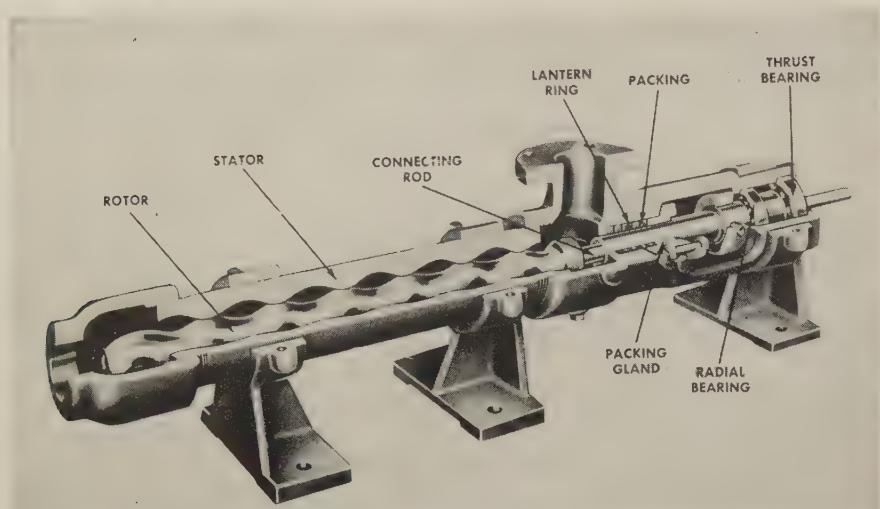
Other Advantages—In addition to the advantages Kelvinator has discovered, R. W. Montgomery, general manager for the lubricating firm, points out that the basic Kold-Lube formula, DB 2311, has several variations to meet different requirements. Welding operations can be done without removing the coating.

"Since it's a cold system, the line can be shut down for long periods and started up immediately without our having to preheat cleaning or lubricating solutions," he adds. Equipment takes up less space than many systems. The minimum basic line is 18.5 ft long. It can be integrated into automatic coil stamping lines. The company has patents pending on the products and on the process which controls lubricant application. Mr. Montgomery says firms often can convert their drying ovens and can rebuild stretcher levelers for cleaning sheets.

The company has also set up a pilot plant in Cleveland to coat steel for firms which may not want to buy their own equipment or which want to try out the process. Called Kold-Lube Coaters Inc., the plant opened in mid April. Since then it has been operating seven days a week. Mr. Montgomery hopes to establish similar facilities in Chicago and Detroit. Ultimately, the company would like to see customers have steel shipped from the mill to the coating plant, then forwarded to their stamping plants.

An extra copy of this article is available until supply is exhausted. Write Editorial Service STEEL, Penton Bldg., Cleveland 13, Ohio.

Pump Eliminates Downtime;



Screw type unit has a tool steel rotor that turns in a synthetic rubber body . . .

It Cuts Maintenance Cost



Water with suspended abrasives doesn't cause excessive pump wear

The unit ran for over three years without a breakdown. The previous pump required a major overhaul every nine months—resulting in a three day shutdown

PUMPING liquids with abrasive particles in suspension?

You'll be interested in a pump that takes little maintenance and cuts downtime to a minimum.

A screw type pump, called the

Moyno, supplies water to spray rough castings at Fitchburg Foundry Inc., Fitchburg, Mass., a subsidiary of Kingsbury Machine Tool Corp., Keene, N. H. The pump, made by Robbins & Myers Inc.,

Springfield, Ohio, carries water containing sand, slag, and metal fragments.

- The spray system supplements a casting washer. It recirculates water containing abrasive particles.

The foundry flushes cores and removes sand or slag with a casting washer, made by Pangborn Corp., Hagerstown, Md. A supplementary spray system throws water, at more than 300 psi, against the fresh castings. It operates at least 7 hours every working day and saves 87 per cent of the manpower needed for hand cleaning.

Water is re-used. Some abrasive particles are trapped by baffles, but others, held in suspension, pass through the pump. Needed: A pump that can carry the grit-contaminated water without wearing excessively.

- The pump, which works on the screw conveyor principle, was in operation more than three years without a breakdown.

The six stage, progressing cavity pump is driven by a 50 hp motor; a 75 hp motor was needed for the previous pump. A tool steel rotor, turning at 780 rpm in a synthetic rubber stator, delivers water at 365 to 400 psi.

Simple design permits maintenance to be done on weekends, when the spray system isn't in use.

The pump ran for more than three years before it required major repairs. It failed only when a large piece of metal escaped the baffles in the circulating system, breaking the rotor and tearing the stator. The stator, rotor, rotor head, and connecting rod were replaced. Total cost: \$1100.

- With the previous pump, frequent breakdowns and overhauls caused foundry shutdowns.

The original pump wore excessively because of abrasives in the recirculated water. Repair bills and shutdowns offset labor savings promised by the spray system.

The pump had to be overhauled every nine months. The job took three days and made a foundry shutdown necessary.

Each overhaul cost about \$1200. Service cost on the pump, in the seven years it was used, was estimated at \$12,000.



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"When you need high quality specialty steels, call Jessop. Our service will keep you sold."

VMA 6723

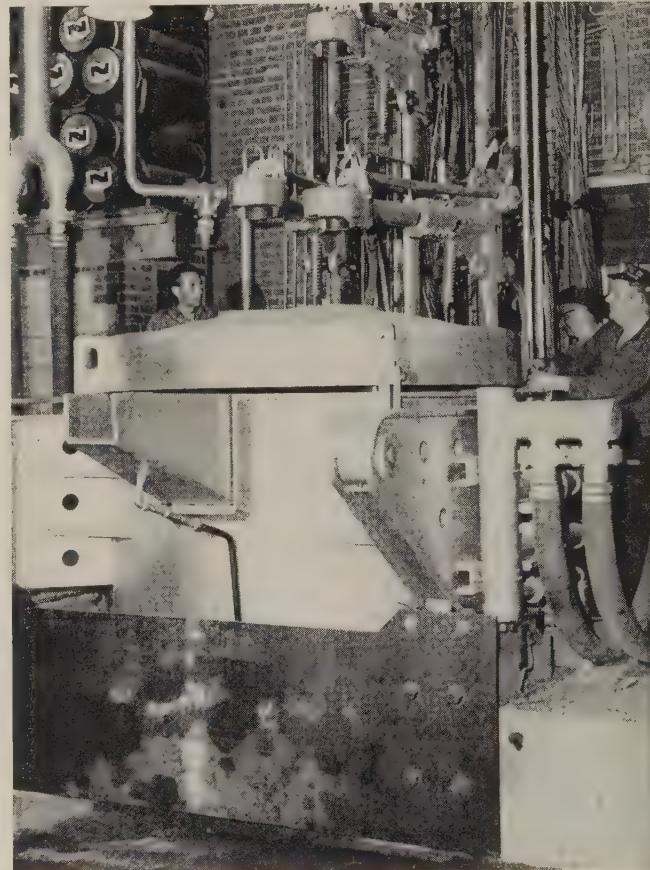
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STEEL COMPANY
Washington, Pennsylvania
OFFICES IN PRINCIPAL CITIES

Slag Washing of Stainless Steels Graduates from Pilot Stage

Pilot Furnace



New \$100,000 Furnace



Eastern Stainless Steel Corp., developer of method to cleanse titanium bearing stainless, adds \$100,000 furnace to melt a special slag into a washing material (liquid flux)

USERS of washed titanium bearing stainless steel have a bigger supply at their beck and call.

Eastern Stainless Steel Corp., Baltimore, developer of the "cleansing" process, has moved it out of the pilot stage by adding to its facilities.

The addition: A \$100,000 flux melting furnace, which supplements a pilot furnace.

The two furnaces melt a special flux material through which stainless steel is poured in the "cleans-

ing" process. This, the company says, removes a remarkably high percentage of inclusions that ordinarily plague stainless alloyed with titanium.

- **Benefits**—As a result, there is no banding, segregating, or agglomeration of inclusions . . . the stainless is clean and free of weak spots that could cause fabrication troubles, the company explains.

Because the material is unusually free from harmful inclusions, sheets,

plates, coil and strip made of it can be spun, drawn, machined, or polished without high scrap loss, the company adds.

Eastern calls the process "slag washing." It is synonymous with the term "flux casting" and fluid-mold casting.

- **Where It's Used**—Eastern is using the process on four grades: 321SW (the SW stands for slag washed), A-286, 19-9DL, and 19-9DX.

In sheet form, the majority of these steels are used for the hot parts of jet aircraft engines.

Other applications include high temperature steam service.

The slag washing process can

also be used for regular commercial grades with proven benefits to steel quality.

• **Buildup**—Slag washing of stainless started at Eastern about three years ago. First, slag was melted in a carbon crucible container in induction furnaces where it could be poured directly into the molds. As a result of this preliminary work, a pilot furnace was built. Now the company is starting to use its new furnace.

Both the pilot furnace and the new one are in the melt shop. The furnaces are electric arc types. The inside of each is steel, the slag or flux forming a lining on the water cooled walls. Water cooling protects this inside steel shell from heat at the elevated temperature at which the slag is used (3000° F).

Melting of the flux is continuous. As melted flux is used, the furnace is refilled with the rocklike, cold flux. It is a special slag (the size of a hickory nut) from Union Carbide Development Co., division of

Union Carbide Corp. In fact, since the inception of the slag washing project, Eastern has had the co-operation of this special development division of Union Carbide.

• **For Bigger Ingots** — The pilot slag melting furnace serves molds that make 8000 lb ingots. The new furnace is supplier to molds for 17,000 lb ingots.

Ingots that have been slag washed are smooth. They do not have the customary surface roughness resulting from direct contact with the mold and air oxidation. Oxidation is prevented by the slag that covers the ingot like an egg shell.

Because the hot flux also retards the rate of solidification, low density contaminants in the steel have time to float to the top of the ingot into the slag for discard. When the slag "egg shell" crumbles away, the stainless steel within is clean. There is no need for surface grinding to eliminate subsurface porosity or contaminants.

The Why of Flux Casting

In nonflux cast stainless,

there is subsurface porosity

and formation of stringers

and . . .

the metal can break during fabrication

In flux cast stainless,

surface is clean;

nonmetallics are dispersed

and . . .

the metal can be fabricated
with a minimum of problems

Flux Casting Process



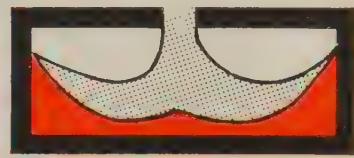
Flux



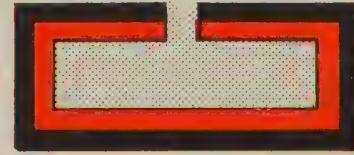
Titanium Bearing
Stainless Steel



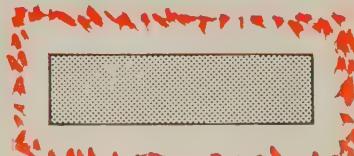
A measured amount of liquid flux at 3000° F is poured into ingot mold an instant before molten steel is teemed into it. This high temperature keeps the flux molten longer and allows gas and impurities more time to float to the surface



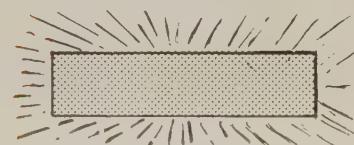
Molten, titanium bearing stainless steel is poured into the flux in the mold. A washing action takes place between the flux and the steel, suppressing the formation of harmful inclusions. The weight of the steel pushes the molten flux up the sides of the mold



When teeming of the ingot has been completed, the liquid flux has been forced up the sides and over the top of the steel. Upon solidification, the slag provides an "egg shell" covering for the ingot. This shell prevents porosity of the ingot surface from oxidation, and retards solidification so that low density contaminants in the steel have time to float to the top of the ingot where they can be cropped off



When the ingot is removed from the mold, the black, glassy slag shell containing impurities crumbles away from the solidified steel



"Clean," slag washed, titanium bearing stainless steel ingot is ready to be made into sheets, plates, coils, or strip

Floturning Moves to a New Market

Teamed with other operations, it offers a shortcut to drawing

A MISSILE contractor switched from deep drawing to a process that combines Floturning and reforming. His part costs plummeted from \$5.75 to only 78 cents. (Another example is shown below.)

Behind these dramatic savings is a method developed by engineers at Lodge & Shipley Co., Cincinnati, to let you shortcut many drawing jobs. Labeled Flo-Reforming, the process is a tailored modification of the company's already established Floturning operation (STEEL, Mar. 29, 1954).

- By Floturning the part blank,

you can get the forming cycle off to a head start.

That's the way Claus L. Sporck, vice president of Lodge & Shipley's Floturn Div., explains the operation. The first step is to produce a cone from the flat blank. This cone can then be reformed into a cylinder; lengths can be produced up to three times the cylinder diameter in one forming operation.

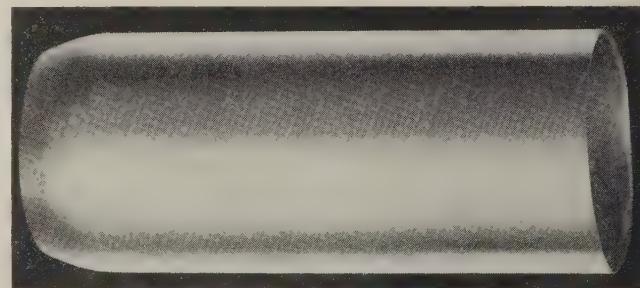
Mr. Sporck feels the process can help eliminate many intermediate drawing stages necessary on some parts. It can also get rid of the attendant annealing steps.

- It will compete with drawing. Also, it may make practical some one piece parts that now must be fabricated.

All kinds of pressure vessels, including oxygen bottles and fire extinguishers, should be ideal for the process, says Mr. Sporck. In addition, he sees a host of other applications, including: Shell cases, rocket fuel cases, all bottomed cylinders where parts now must be welded and where the weld might be detrimental (as in food and chemical industry parts), automotive shock absorbers, and hydraulic equipment.



Claus Sporck, who pioneered Floturning in this country, holds a 302 stainless steel cylinder, 2½ in. OD and 14 in. long. The part started as a blank, like the one in his right hand, was Floturned to a cone like the one on the table, reformed to a cylinder (bottom right), then given a final reform



How It Pays

Problem:

Produce 500 stainless steel shells, 3 in. OD, 7½ in. long, with a wall thickness of 0.042 in. Here are the two methods considered and their comparative costs.

Drawing

The ten steps in the sequence include two shearing operations, three draws, two washes, two anneals, and a trim. The costs:

Material (Each part starts as a 9 5/16 in. square blank, 0.060 in. thick.)	\$638.00
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Tooling	\$3,000.00
Factory Labor	\$83.00

SELLING PRICE \$3.20 EACH

Flo-Reforming

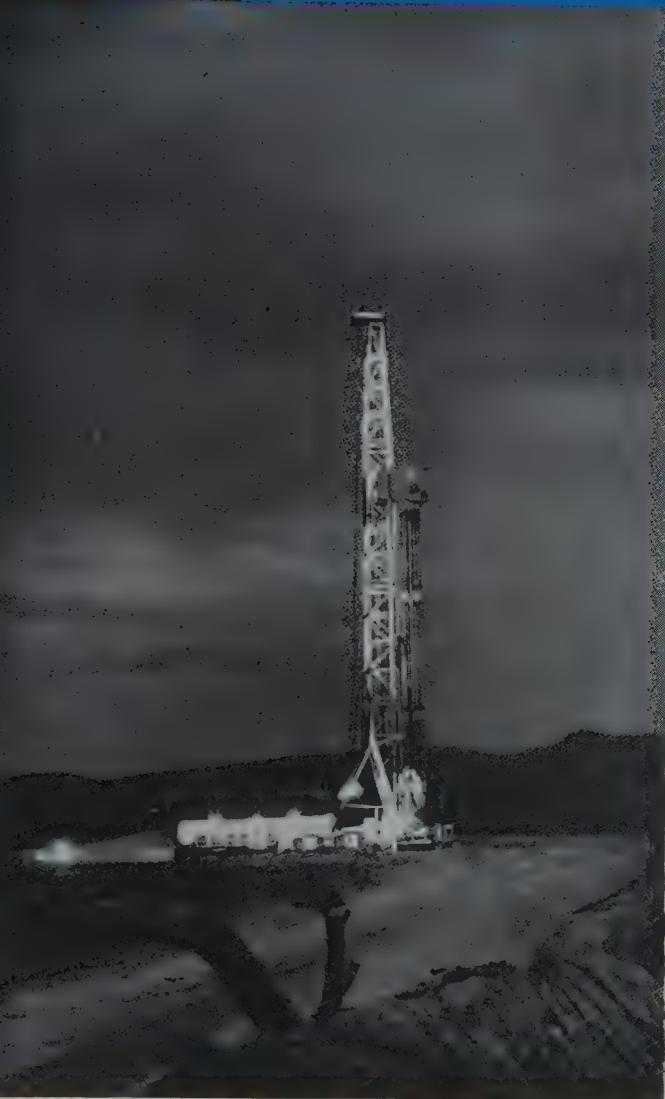
The six steps include a shear, Floturn, wash, anneal, trim, and reform. The costs:

Material (Each part starts as a 6 3/16 in. square blank, 0.125 in. thick.)	\$524.00
Tooling	\$1,640.00
Factory Labor	\$61.00

SELLING PRICE \$2.28 EACH



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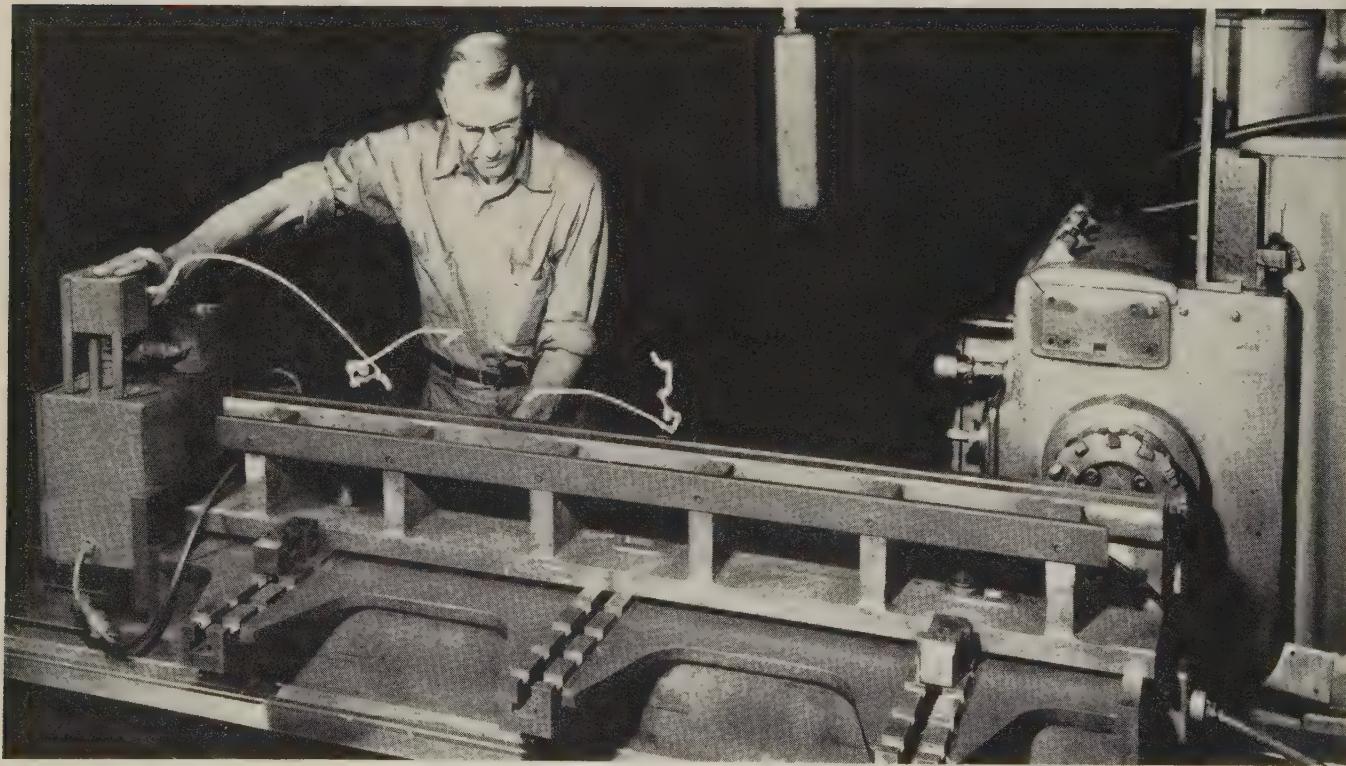
Wasting a Lot of Motion in Loading?

Electromagnetic Fixtures Can Help You



They hold parts securely and can be loaded quickly. Some important side benefits: Reduced vibration and chatter, increased cutter life, reduced operator effort.

Operator is loading the same bar in both pictures. Wrist lights show it takes fewer motions to clamp the bar electromagnetically than with three straps and bolts.



IF YOUR machine loading time is longer than your cutting time, electromagnetic chucks or milling fixtures may solve your problem.

That and other advantages were reported by F. L. Suchanek, Sundstrand Machine Tool Co., Rock-

ford, Ill., at the Twenty-third Annual Machine Tool Electrification Forum, sponsored by Westinghouse Electric Corp.

- An electromagnetic chuck cut loading and clamping time 75 per

cent for a shear knife maker.

Other benefits: Cutter life was improved; speeds and feed rates were faster than those obtained with mechanical clamps; and vibration and chatter were reduced.

The work was done on a 50 hp

illing machine with a heavy duty union fixture made by Sundstrand.

The electromagnet is controlled from the machine pendant. An interlock is provided so that the ed motor won't run unless the electromagnet is on.

Accuracy and distortion problems can be eased.

In another application, heavy mechanical clamping pressures necessary to hold transmission housings caused distortion. When pressure was released, the top and ends of the housing were not flat within required limits.

The problem was solved by locating the housing with two dowels on a horizontal electromagnet, then adjusting the vertical electromagnet until it registered against the side surface.

The control elements for this fixture are in a portable control station. It's independent of the machine pendant control.

Even small parts can be held. For example, the device is being used on a slotting cutter that's $5\frac{1}{8}$ x $5\frac{1}{16}$ in. and is slotted 0.090 in. wide and $\frac{1}{2}$ in. deep. About 3 per cent of the mass of the part is removed in the slotting cut. Cutter life between sharpenings averages 30,000 parts, or about 2140 cycles.

Electromagnetic clamping may be the only way to make an operation economical.

In one application, a small refrigerator valve plate is face milled on both sides in a reciprocating milling cycle. It's a Meehanite casting $\frac{3}{8}$ x $2\frac{1}{2}$ in. x 2 in. The operator loads one fixture while the other is in the cut.

Trip dogs on the table control the fixture. Two transformer rectifier units independently control each fixture. Production averages 170 per hour at 85 per cent efficiency.

Vee fixtures for milling keyways are popular.

Small diameter cutters can be used. Shafts can be grouped closely so that more parts can be handled per machine cycle. It also means improved cutter life, higher production, and lessened operator effort.



Allis-Chalmers has come up with a small protective relay without moving parts. Three knobs adjust the ranges of the inverse time and instantaneous current elements. Relay operation is indicated by neon lights that operate in combination with a pair of memory cores.

Protective Relay Smaller, Uses Light Semiconductors

A STATIC protective relay, one-third the size of the conventional induction type, has been developed by Allis-Chalmers Mfg. Co., Milwaukee.

It has no moving parts. Semiconductors (transistors, diodes, thermistors, varistors) are used instead.

First of the relays will appear in switchgear equipment this summer as production facilities are completed. Development of other types of static relays will continue, such as those which respond to voltage, power, and phase angle. Even translation of pressure, temperature, and light into discrete electrical quantities is possible.

• Advantages claimed by designers:

1. Shock and moisture proof—all components are mounted on a printed circuit board. This is potted with an epoxy-resin.
2. Plug-in construction simplifies installation or removal. Transformer shorting switches are not required.

3. Neon lights for instantaneous and time trip indications replace mechanical targets.

4. The lack of moving parts permits the relay to adjust instantaneously to prevailing load distribution. Where required, resetting speed can be controlled.

5. In combination with induction relays, the static device minimizes co-ordination problems.

6. Calibration and setting, controlled externally, can be done by technicians trained to handle induction relays, with the same instruments.

Its relay characteristics can be easily changed. Present relays include five taps for the inverse-time unit and five taps for the instantaneous trip unit.

One type of relay can be equipped with an integrating double-acting memory device to simulate heating and cooling of an electrical device such as a motor. This permits operation close to temperature limitations without causing unnecessary outages.

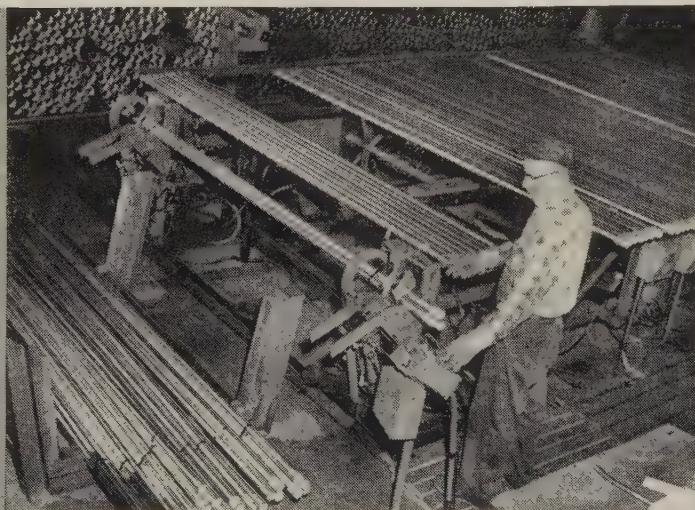
WHERE CAN YOU USE THESE

Versatile powered machines for automated strapping stations

Versatility is a key feature of the new Acme Steel Powered Strapping Machines. Simple in design, compact in construction, they can be mounted in any position and automated to any degree to meet the requirements of the installation. The basic units are augmented with specialized fix-

tures and accessories to fit your particular production flow and strapping needs.

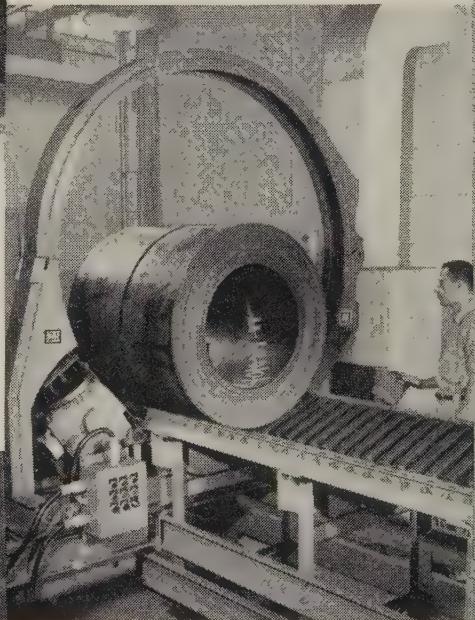
Let your Acme Idea Man initiate development of Ideas to improve your strapping and packaging procedure based on the versatile new Acme Steel F4 or F5 Strapping Machines.



Sheet in coils is strapped by one operator at conveniently placed push button control box. F5 machine is equipped with full track for wide range of coil sizes. Basic tensioning and sealing unit pivots into position and back allowing for variations in coil diameters.



Conduit is securely bundled and strapped with F4 machines. Strap track and fixtures for nesting and ejecting are built into machine, assuring neat, uniform and tightly strapped bundles automatically. Machines are mounted on tracks for moving in and out for correct spacing of strap regardless of conduit length.



Wire in coils strapped with "push button" F4 machine. Coils of wire are conveyed onto indexing table and rotated into position for each strap. The basic F4 strapping unit can be pivoted by a button control allowing the seal to be applied on either the face or underside of coil.

Bending Rolls Eliminate Flat Ends on Angles

AN OPERATOR can bend a steel section completely around the center roll with the Kling horizontal double pinch angle and structural bending roll. The unique action of the machine eliminates 90 percent of the flat ends which are otherwise unavoidable in angle bending.

Hydraulic pressure provides bending force and at the same time assures maximum flexibility and ease of control. The pinch rolls and bending roll are actuated by heavy duty hydraulic cylinders. Control levers actuate leakproof pressure flow valves. This arrangement gives the operator instant response and sensitive control of the rolling operations at all times.

A two-stage, high-low pressure pump enables the rolls to be brought into operation quickly, and upon contact with the work, develops full working pressure immediately. The cone type, form gear drive is mounted on antifriction bearings. Herringbone gears run in an oil bath.

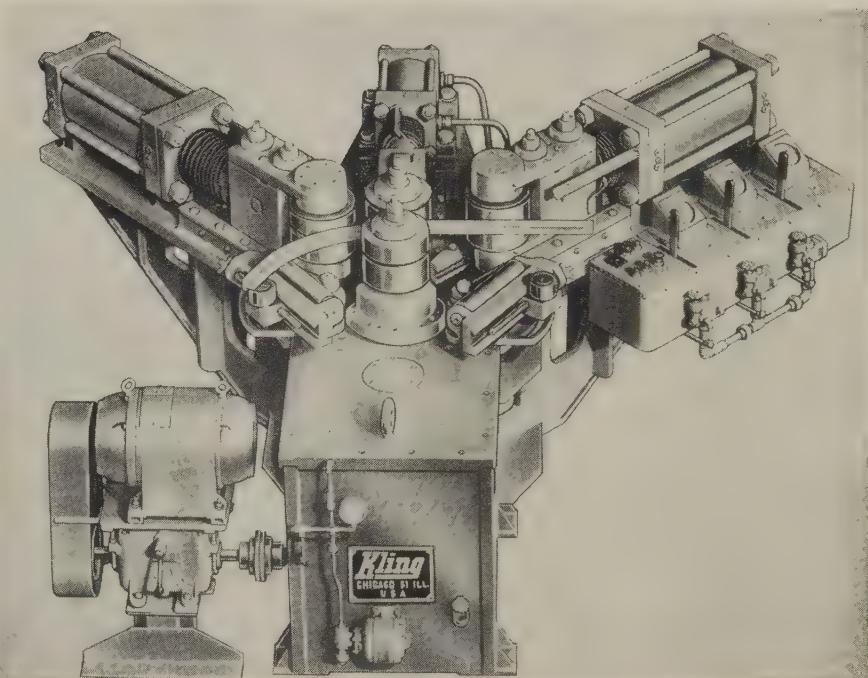
For more information, write Kling Bros. Engineering Works, 1320-32 Kostner Ave., Chicago 51, Ill.

Thin, Portable Conveyors Fit into Cramped Spaces

BECAUSE it is slim, the Bosworth conveyor will fit easily into cramped spaces between machines and within production lines. The unit is only 4½ in. wider, at any point, than the conveyor belt itself.

Of all-steel construction, the conveyor is designed to transport castings, stampings, blanks, screw machine parts, and scrap to another machine or a tote box. It can be quickly set up for any incline angle from 22 to 45 degrees simply by adjusting the telescoping legs.

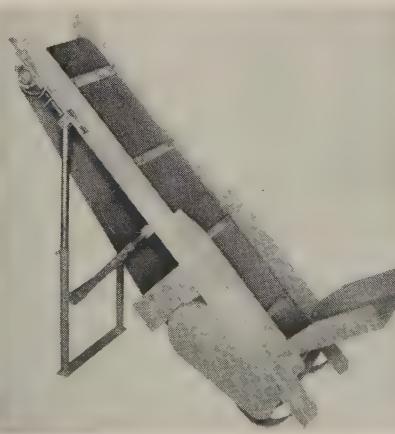
Eighteen models are available with oil resistant belts that are 6, 12, 18, or 24 in. wide, and 4, 6,



8, 10, or 12 ft. long. The user has a choice of integral 1 in. rubber cleats vulcanized to the belt, metal cleats bolted to the belt, or where high temperatures are present, an all-metal belt.

A standard feature of all conveyors in this line is a loading chute, which is easily adjusted to a 45-degree angle, and a mechanical backstop to prevent parts from sliding off the belt.

For more information, write Bosworth Mfg. Co., 34250 Mills Rd., Avon, Ohio.



Abrasive Wheel Machine Lowers Deburring Costs

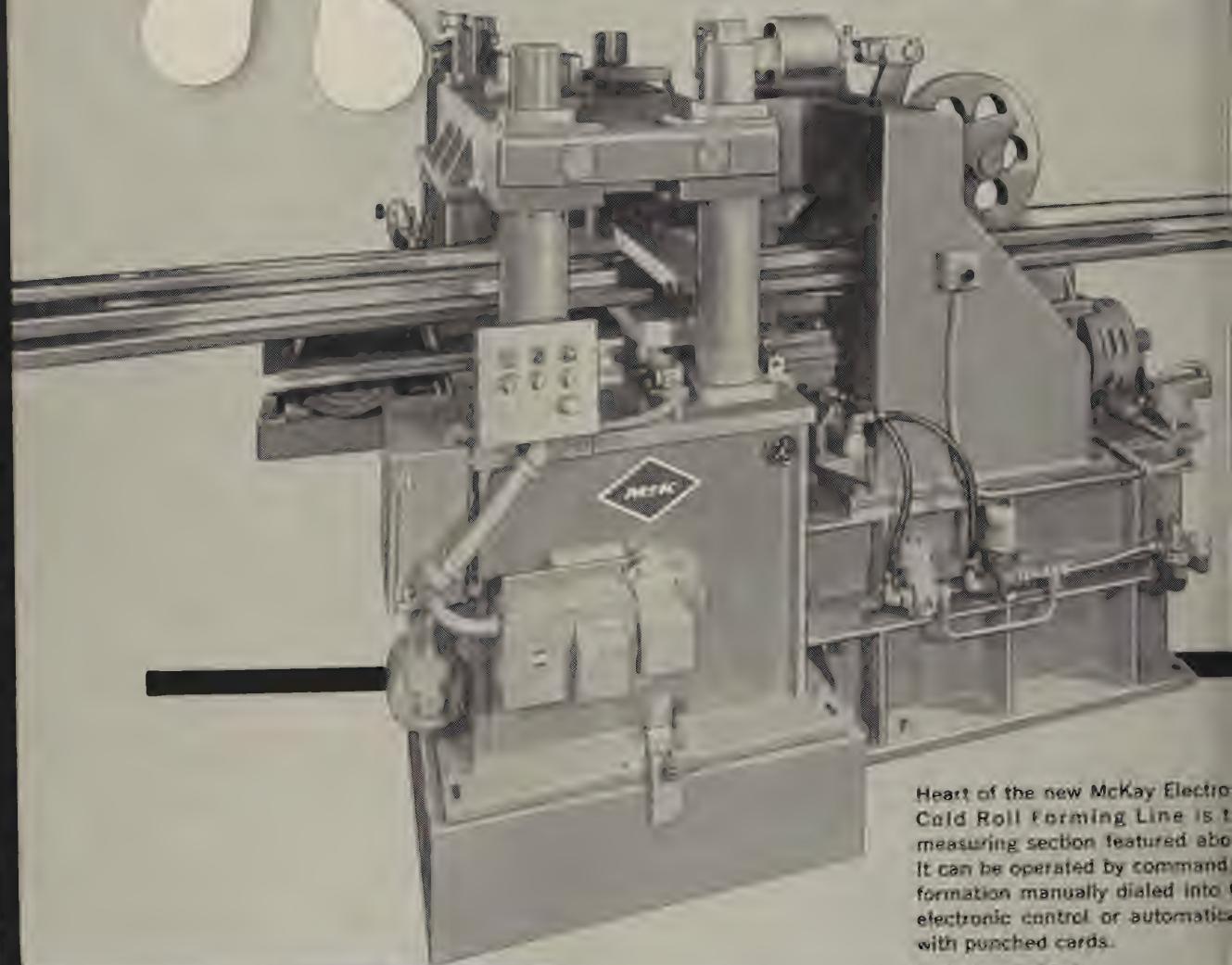
A PROTOTYPE model of a new deburring machine has cut an implement manufacturer's deburring costs on a 24-tooth sprocket from 27.5 to 7.4 cents. Work time per sprocket (two sides) was slashed from 3 minutes (by hand grinding and brushing) to 40 seconds.

The deburring was done by a formed PG wheel (made by Minnesota Mining & Mfg. Co., St. Paul) which moves hydraulically into working position, automatically feeds into contact with the gear, and retracts to the starting position at the end of a prespecified period. The wheel and gear spindles operate in a timed relationship so that the work indexes one tooth for each revolution of the wheel.

The PG wheel is made of hundreds of die cut leaves of coated abrasive fabricated into a wheel and locked at the hub with aluminum

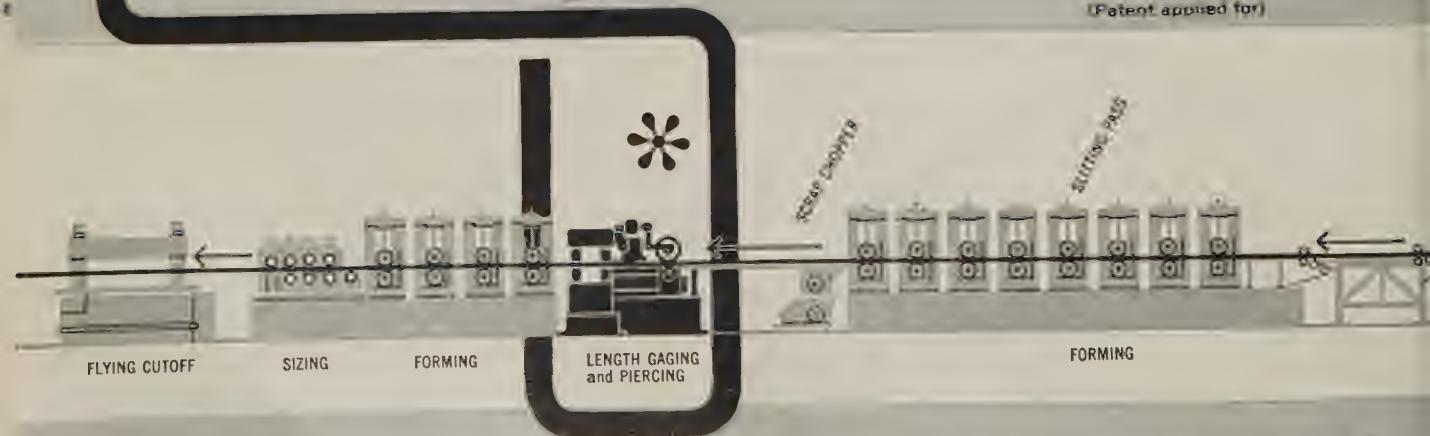
(Please turn to Page 160)

10,001



Heart of the new McKay Electro-Cold Roll Forming Line is the measuring section featured above. It can be operated by command formation manually dialed into the electronic control or automatically with punched cards.

(Patent applied for)



The line illustrated above was recently purchased by a large building products manufacturer for high speed production of roof and floor joists.

Different lengths...

...WITHOUT A MANUAL ADJUSTMENT

McKAY'S ELECTRONIC LENGTH GAGE

has a memory permitting instantaneous changes in cut lengths and scheduled quantities as well as precise control of notch and punch spacing on each length.

A transistorized electronic control reads and stores information from punched cards and utilizes an electronic counter to trigger a punching and notching press at precise intervals as commanded by the coded data on the punched cards.

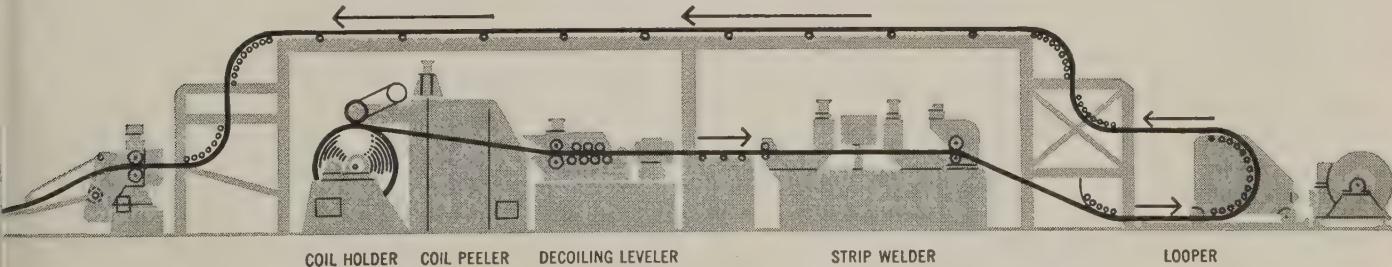
Now! the planning department can schedule the output of a forming or cut-up line without waiting to group identical lengths.

Now! down time previously required for manual length gage adjustment is converted to productive time.

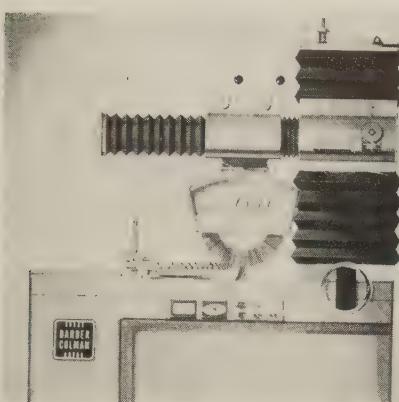
Now! in addition to length control, precise spacing of notches and punches can be controlled and changed by commands received from coded information on the standard data processing card.

**BE SURE TO GET THE FULL STORY
ON McKAY'S ELECTRONIC GAGE FOR YOUR
PRODUCTION LINES.**

Call or write the McKay Machine Company,
Youngstown 10, Ohio.



MCKAY
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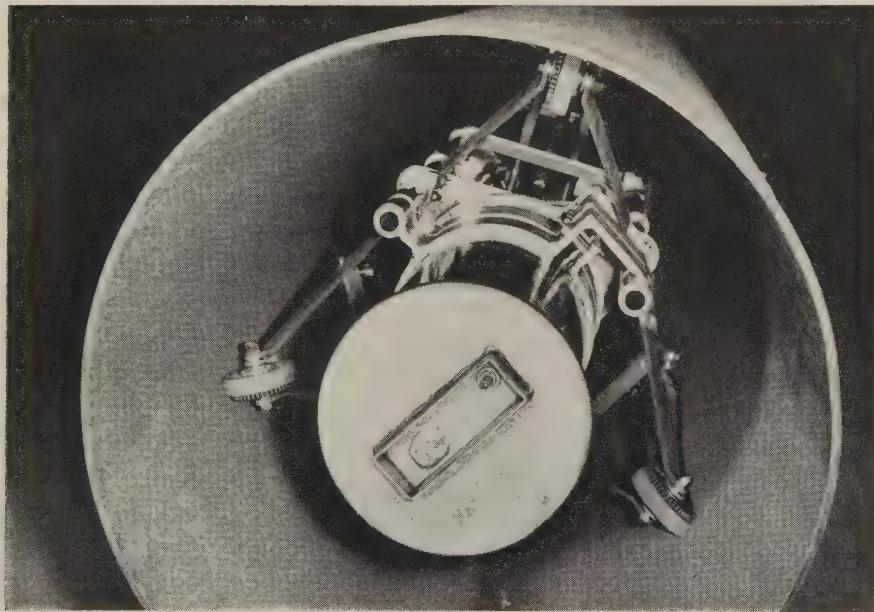
flanges. Production models of the machine, made by Barber-Colman Co., Rockford, Ill., will employ abrasive wheels from 6 to 14 in. in diameter, and will handle gears up to 16 in. OD.

Scavenger Cleans Out Machine Tool Sludge

THE COST of machine tool servicing can be sharply cut with the new Gorske Sludge Hustler, which provides clean, fast scavenging of sludge mixed with chips, metal solids, waste oil, and water.

Sludge is collected by vacuum, transported to the disposal area, and discharged under pressure. The unit handles well in narrow aisles and between machines. Maximum speed is 15 mph. The engine-driven vacuum generator develops a suction of 32 ft of water, enough to handle the heaviest semifluid industrial sludge.

Collection rate is about 60 gpm. When the 150 gallon tank is loaded, a stainless steel float valve closes off the suction. During transport to



Unit X-Rays 40 ft of Pipe a Minute

PIPE from 12 to 36 in. in diameter can be x-rayed at the mill or in the field at speeds of up to 40 fpm with a machine called Travel-Ray.

The equipment employs an x-ray tube which projects a narrow beam of parallel rays only, permitting radiography of the longitudinal welds in pipe sections while the x-ray source is in motion. The relative speed of the machine virtually eliminates scatter radiation. Sensitivities of 1 to 1.5 per cent can be obtained.

The Travel-Ray radiographs every inch of every weld, both longitudinal and circumferential. It can be used to x-ray only circumferential welds if desired. Up to 2000 ft of pipe can be radiographed without stopping the machine.

A quick-disconnect cable eliminates the need for reversing the motor at the end of the pipe section, and a rail system is available for high production applications.

For more information, write Travel-Ray Corp., Houston, Tex.

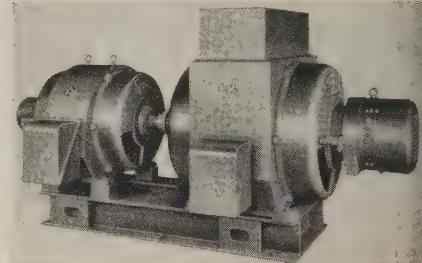
the disposal area, the vacuum pump is reversed to pressurize the tank.

For more information, write Gorske Industrial Equipment, 132 E. 30th St., Indianapolis, Ind.

M-G Set Operates Quietly

QUIET OPERATION is designed into a 400 cycle 220/440 volt motor generator set for in-plant use. Noise limiting features:

1. The generator is ventilated straight up which moves noise up



and away from personnel. 2. Noise paths through the generators are acoustically lined. 3. Special rotor slot wedges are used to reduce windage noises.

For more information, write Electric Machinery Mfg. Co., Minneapolis 13, Minn.

Variable Speed Drive Has Planetary Reducer

A PLANETARY reducer can give you a high torque, infinite range drive with speeds up to 300 rpm. In-line design saves space and permits a package of motor, variable speed drive, control, and reducer that is mounted with only four bolts.

The reducer develops a torque of 100 in.-lb. Built-in overload protection prevents damage to the reducer, transmission, or driven machinery.

A micrometer control is shown but the transmission is also available with other controls, including remote micrometer, remote electrical, pneumatic, and automatic con-



Instantly,
Smoothly,
new "Contact Bronze"
applies graduated power
to heavy-duty trailer
brakes

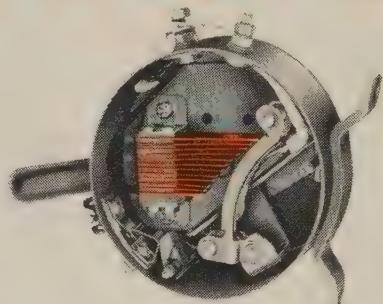


CONTACT!



COSTS 25% LESS

These contact leaves are stamped and formed from Bridgeport "Contact Bronze" Alloy 92 at a savings of 25%. Its performance-proved spring properties provide part reliability through thousands of cycles.



FORMS EASILY

Warner Electric Brake system for heavy-duty trailer combination is actuated by this controller. This view shows the series of easily formed "Contact Bronze" leaves that transmit power in smoothly graduated steps.

This ingenious electric brake system devised by Warner Electric Brake & Clutch Company gives the driver instantaneous synchronization of all brakes. Through a graduated series of Bridgeport "Contact Bronze" leaves, it lets the driver adjust torque smoothly to suit load and road conditions.

"Contact Bronze" Alloy 92 saves up to 25% on material cost. Its quality and dependability are maintained by the addition of a minute quantity of phosphorus for superior

spring properties. It easily withstands difficult forming operations without losing its spring properties.

If you form or stamp contact parts for electrical or electronic equipment, you will want details on "Contact Bronze," as well as Bridgeport's other alloys for the electrical industries. Call your nearby Bridgeport sales office for immediate service or, for samples and a copy of the "Contact Bronze" data sheet, write to Dept. 3906.



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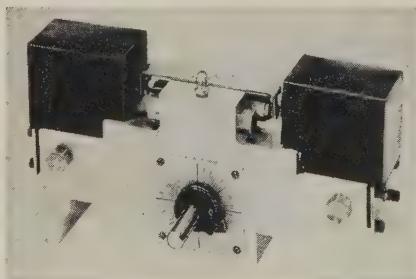
trols. In addition to the planetary reducer, the transmission can be furnished with standard output to provide speeds up to 1800 rpm or with a variety of built-in stepup or stepdown assemblies.

For more information, write Graham Transmissions Inc., Menomonee Falls, Wis.

Hydraulic Rotary Unit Provides Reciprocation

A SELF-CONTAINED, hydraulic, rotary torque power unit opens up many possibilities for cutting costs in the operation of machine tools and in aircraft, missile, and commercial applications.

Operating at a power input range from 50 to 1000 psi, the unit converts hydraulic pressure into reciprocating rotary motion that is easily regulated to fit all job requirements. Power output of 100 psi hydraulic pressure will provide 500 in.-lb of working torque over a range of rotation from 5 to 360 degrees.



The unit will self-reciprocate within its adjusted range of motion, as well as in semimanual or full manual operation. Electric solenoid actuation is available for either or both directions of rotation.

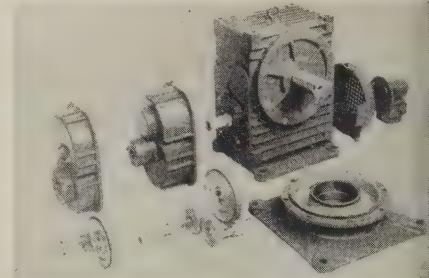
For more information, write Cleveland Pneumatic Industries Inc., 64 Old Orchard, Skokie, Ill.

Gear Reducers Feature Flexibility in Mounting

FLEXIBILITY in mounting and drive arrangements are emphasized in a line of high efficiency, high capacity, heavy duty, worm gear speed reducers.

Helical attachments for double

and triple reduction units combine the efficiency advantages of helical gearing with the high ratio advantage of worm gearing. Improved tooth forms, precision ground alloy steel worms, special high strength bronze gears, and ground helical gearing result in space savings up to 50 per cent, compared with conventional worm gear reducers, says the manufacturer.



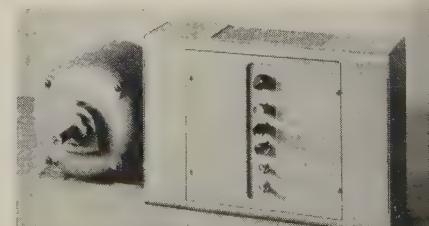
The line has one basic housing design for each size. Standard mounting bases, worm gearing, single and double helical attachments, fans, and torque control attachments permit top, bottom, or side mounting with or without mounting base. All units can be supplied with a torque control attachment to protect driving and driven equipment from damage due to overloads.

For more information, write Philadelphia Gear Corp., Erie Avenue and G Street, Philadelphia 34, Pa.

Adjustable Speed Drive Has Good Speed-Torque

MODULAR construction of a line of adjustable speed drives in the 1/6 to 10 hp range permits the user to select only the features required for the application. Optical characteristics include dynamic braking, reversing, jogging, remote control, torque limiting, and line voltage compensation.

The drives use a magnetic amplifier unit driving thyratrons in a full wave circuit, followed by a dc shunt motor. Speed ranges of 100:1



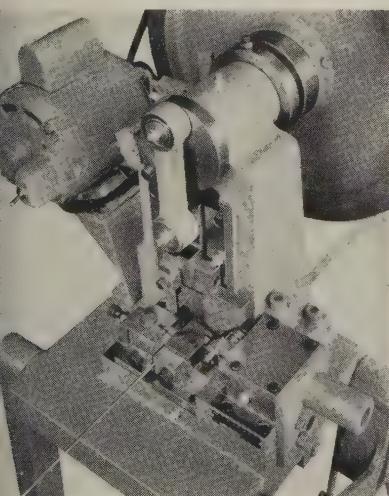
and regulation percentages of 1 to per cent are attained without tachometer feedback. A standard duty line (Series 25) covers the range from 1/6 to 3/4 hp. A heavy duty line (Series 200) is available in the 1/6 to 10 hp range.

The manufacturer also announces a nonelectronic line (Series 35) for use where exacting speed regulation is not of prime importance. Available in the 1/6 to 3 hp range, these drives use adjustable autotransformers and rectifiers.

For more information, write Cleveland Machine Controls Inc., 55 Brookpark Rd., Cleveland 9, Ohio.

High Speed Tube Cutter Produces Burrless Parts

UP TO 235 pieces of steel, copper, aluminum, and other metal tubing can be cut per minute on the Novi Model 500, high speed, tube cutting machine. It works on pieces as short as 1 1/2 in. and holds this length to plus or minus 0.005 inches



with parallel faces.

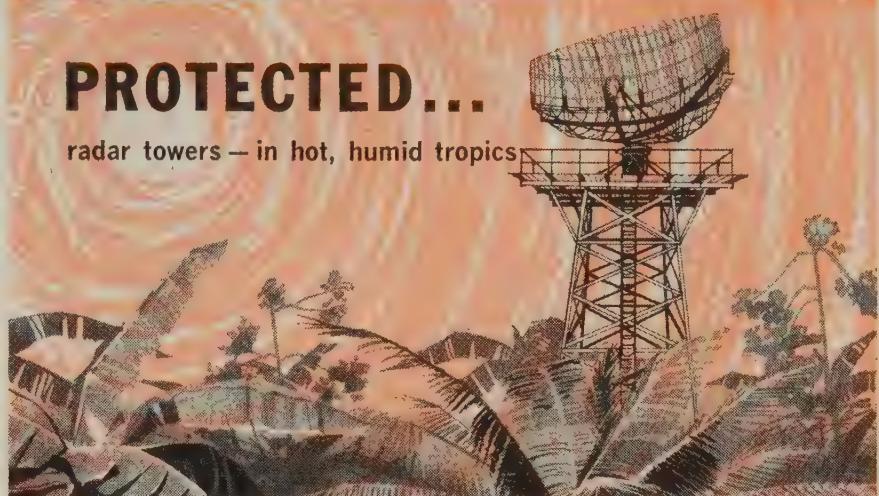
The unit is designed to cut tubing from 1/8 in. in diameter having 0.028 in. maximum wall thickness, to 1/2 in. diameter tubing having a 0.060 in. maximum wall thickness. Exclusive of operator wages, the new machine has produced up to 1400 tube pieces per penny of machine costs.

In manual operation, tubing is fed through radius cutoff

gal-va-nize (găl'və niz'), *v.t.* 1. to simulate by or as by a galvanic current. 2. to coat (metal, esp. iron or steel) with zinc.

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radomes — in frozen arctic wastes

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Zincilate can provide true galvanic protection for these vital components in our radar defense network, because Zincilating is the new method of galvanizing — as modern as a missile.

Zincilating can be done anywhere, any time, on any product or structure of any size or shape. As on these radar towers, where Zincilate was brushed on to repair faults and weaknesses of an old galvanizing method. No pre-treatment of the original galvanize was required.

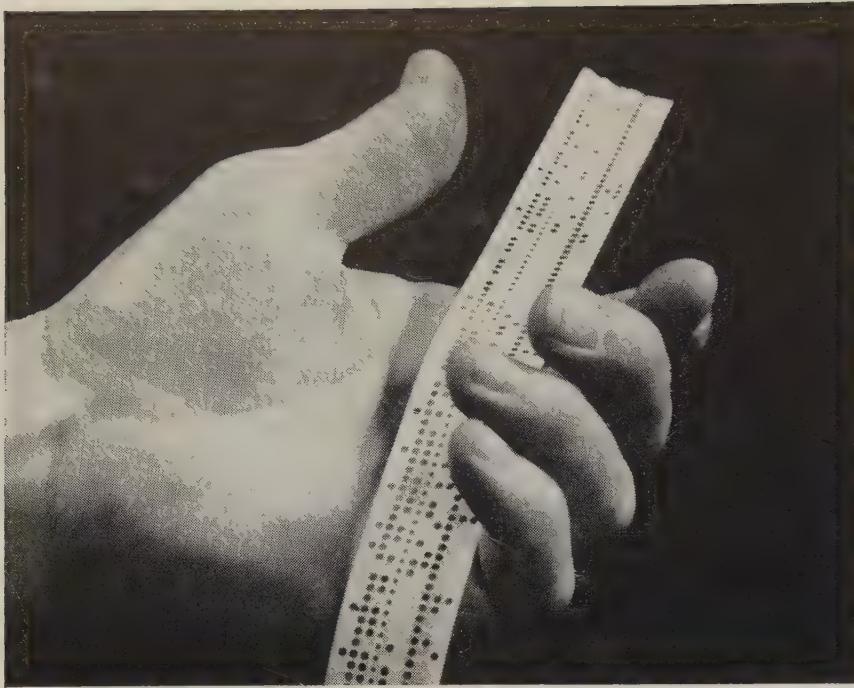
Zincilating saves time, money, materials and manpower. As on radome maintenance, where three coats of ordinary material should be applied to every structure during the 60 days suitable for maintenance work, but where one coat of Zincilate actually affords more complete, longer-lasting protection because it dries faster and harder under arctic conditions.

Zincilate, applied by spray, brush, roller-coat or pressure curtain, has much to offer any company working in iron, steel or aluminum, for military or commercial use. Write, without obligation, for complete information including military specification approvals and certified test reports.

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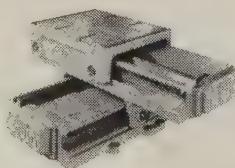
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- **Control Console**—a compact unit, operator-maintained, with shop-proven reliability.
- **Servo Table**—adapted to drilling machines in one day. Automatic positioning on ball bearing ways. Anti-backlash lead screws.

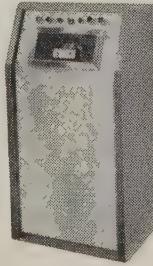
Write for free 12-page booklet "DIGIMATIC MODEL 202." Also—movies shown at your shop or plant on request.



Tape Unit



Table



Control Console

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blocks to a stop. The operator starts the cutoff cycle by depressing a foot control. The cutoff holding block close in on the tubing, holding it rigid and positively positioned. Specifically designed shearing knives cut the tubing. At work, the machine bed can be tilted backward to allow parts to fall directly into tote pans.

For more information, write Novi Tool & Machine Co., 25806 Novi Rd., Novi, Mich.

Regulators Are Gageless

ELIMINATION of costly gage breakage and replacement is possible with a new line of Oxweld industrial gas regulators. The units can be used with oxygen, acetylene or propane on cylinders or manifolds.

Delivery pressures are calibrated on an anodized aluminum plate on the cap of the regulator. The delivery pressure is shown by an indicator running in the slot alongside the calibrated reading. As the pressure adjusting screw is turned in or out, the delivery indicator moves to the desired pressure.



Cylinder pressure is shown by a metal indicator unit on the regulator body. A metal indicator shaft extends $\frac{1}{4}$ in. from the indicator body when the cylinder is full and drops into the body as the cylinder pressure decreases.

Use of a minimum number of parts in the regulators reduces wear problems. It is rarely necessary to replace parts other than the stem, seat, or diaphragm.

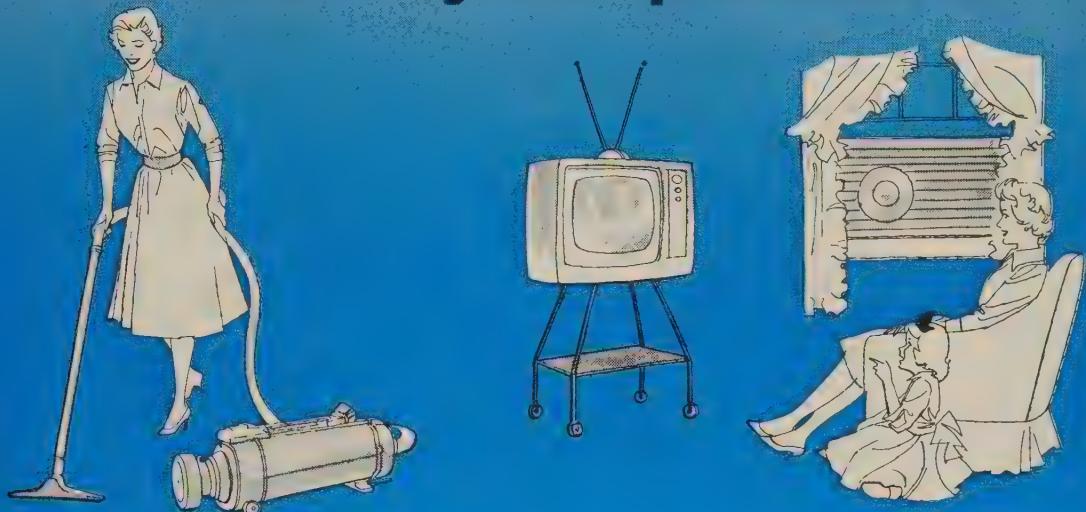
For more information, write Linde Co., division of Union Carbide Corp., 30 E. 42nd St., New York 17, N.Y.

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Close control from mine through mill builds quality into Alan Wood cold rolled steel. Your Alan Wood Representative can explain the advantages of this built-in QUALITY. His complete information on cold rolled steel and its applications, and his advice on type,

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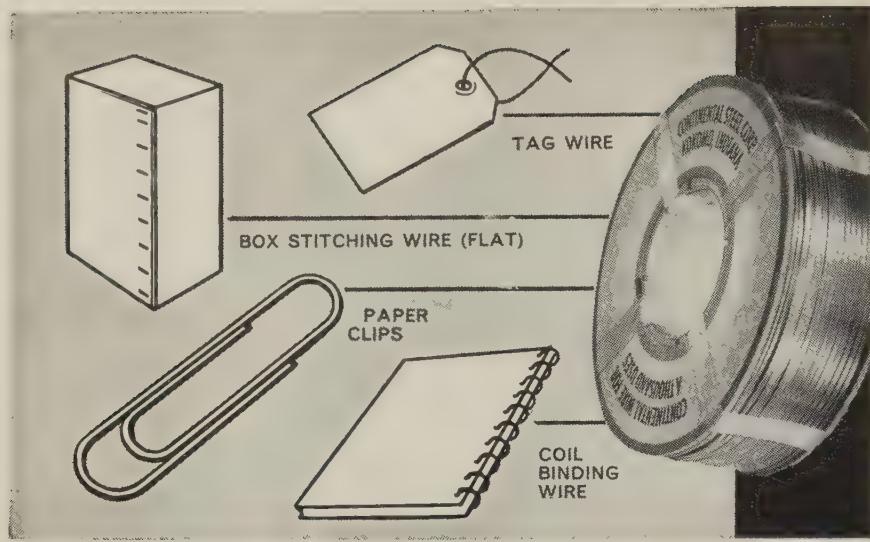
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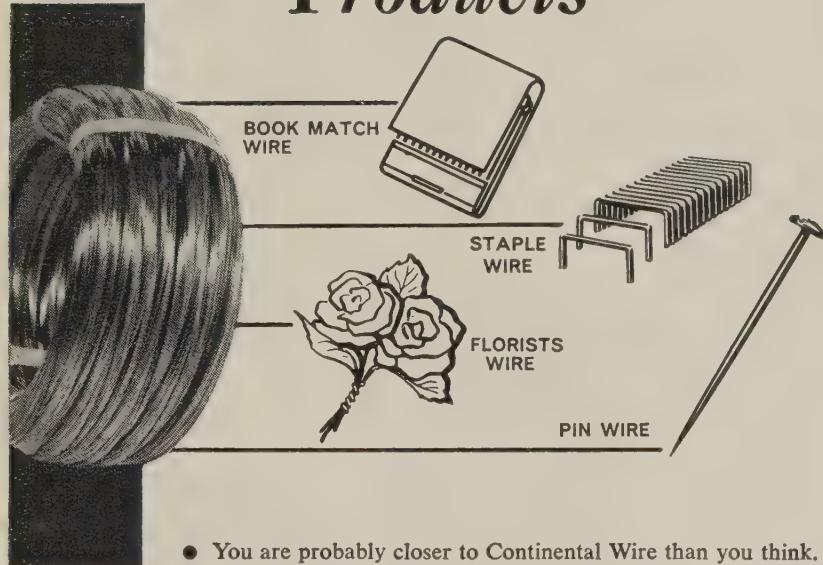


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NEW literature

Write directly to the company for a copy

Plastic Sheets, Rods, Tapes

An 8-page catalog lists available shapes and sizes of Teflon plastic, its properties and applications. Cadillac Plastic & Chemical Co., 15111 Second Blvd., Detroit 3, Mich.

Lubricants for Chain Drives

"Lubrication of Roller and Silent Chain Drives" covers principles of lubrication, maintenance, and oil selection. Industrial Products Dept., Sun Oil Co., 1608 Walnut St., Philadelphia 3, Pa.

Muriatic Acid Data

Comprehensive data on the production, uses, properties, and handling of muriatic acid are contained in a 40 page brochure. Stauffer Chemical Co., 380 Madison Ave., New York 17, N. Y.

Values for Gases or Liquids

A 36 page catalog provides specifications, performance data, specific application information, and optional features of over 200 solenoid valves of bronze and stainless steel construction. Atkomatic Valve Co., 545 W. Abbott St., Indianapolis, Ind.

Thermosetting Mortars

Two data sheets are available on Penn-trowel, a resinous, thermosetting mortar for coating concrete, cement, and other surfaces, particularly in highly corrosive atmospheres. Corrosion Engineering Products Dept., Pennsalt Chemicals Corp., Natrona, Pa.

Packaging of Steel

"Eleven Ways to Reduce Costs and Improve Your Packaging of Steel" describes packaging setups from complete automation to simple strapping tools. Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill.

Fastener Fit Checklist

"Common Thread Fit Problems . . . Their Symptoms and Detection" lists seven common fit problems, noting possible causes, and gaging devices needed to detect them. Standard Pressed Steel Co., Box 944, Jenkintown, Pa.

Beryllium Booklets

Two booklets on beryllium are being offered. One (12 pages) describes properties, chemical analysis, and applications of UOX beryllium oxide. The second (4 pages) describes the hot hardness properties of four beryllium copper casting alloys. Brush Beryllium Co., 4301 Perkins Ave., Cleveland 3, Ohio.

Centrifugal, Rotary Pumps

A 72 page catalog illustrates centrifugal and rotary pumps for a wide range of industrial uses. Pioneer Pump Div., Detroit Harvester Co., 21800 Greenfield Rd., Oak Park 37, Mich.

May 25, 1959

Ship Steel Before July, Users Demand

DELIVERY PRESSURES are mounting as steelmakers fall behind on shipments.

In the Midwest, some fabricators are so concerned about their steel supplies that they're asking top brass to ride herd on orders. For the first time in years, company chairmen and presidents are phoning the mills, sending telegrams, and making personal calls in an effort to expedite shipments. A year ago, the shoe was on the other foot. Top executives from the mills were calling on users in a desperate effort to scare up some business. Even if everything steel consumers ordered was coming in on schedule, they would be in trouble because they didn't order enough. Business picked up faster than they expected. As a result, recent deliveries haven't been large enough to replace steel taken from inventory.

STRIKE FEARS PERSIST—Three weeks of discussion between the industry and the United Steelworkers on terms of a new contract have done nothing to allay consumers' fears of a lengthy strike. Some fabricators may have bought too much; others may have placed duplicate orders. But few have seen fit to cancel. If the USW strikes all the companies with which it has contracts expiring on June 30, only 12 per cent of the industry will be unaffected (see Page 89).

MILLS WARN OF DELAYS—Typical of the warnings that steelmakers have been sending their customers is this letter from a Chicago mill: "We regret to inform you that because of circumstances beyond our control, we are now running late on our production schedules. From all indications, this situation will not improve in the immediate future, and it is expected that by June 30 we will be four to five weeks behind."

FIRST THINGS FIRST—If there is no strike, July might not be as slow as most steelmen thought a month or so ago. It will be a catchup month. Any orders that customers had sent in specifying July delivery will be held in abeyance until the back orders are filled. And unless the delivery situation improves in the next five weeks, that could represent considerable tonnage. Some mill officials are revising third quarter operating estimates up to 65 per cent of capacity if there is no walkout. Buyers who put third quarter orders on mill books just to get rolling preference

may find that doesn't guarantee delivery.

CARRYOVERS IN SHEETS, PLATES—At Chicago, steelmakers are at least four weeks behind on flat-rolled carbon, galvanized sheets, and sheared plates. Pittsburgh and Youngstown sheet mills are from ten days to four weeks in arrears. In New York and New England, carryovers in sheets on June 30 may not exceed two weeks.

REPUBLIC RAISES SIGHTS—General business conditions have improved so sharply in recent months that Republic Steel Corp. has hiked its estimate of 1959 industry output from 110 million to 115 million ingot tons. C. M. White, chairman, thinks his firm may do as well in the fourth quarter as it's doing in the second (operations at 95 per cent of capacity). His estimate of 1960 industry output: 118 million to 120 million tons.

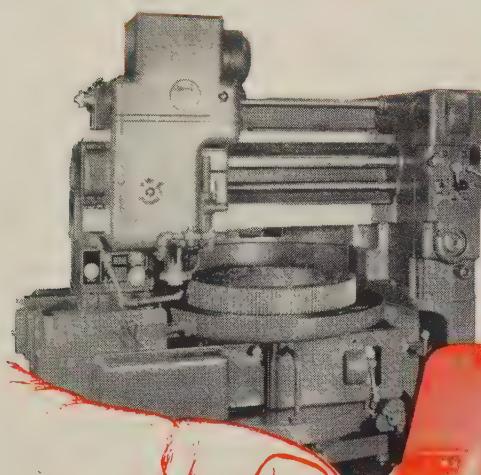
PRODUCTION SETS RECORD—Last week, steelmakers operated their furnaces at 95.5 per cent of capacity and turned out 2,704,000 ingot tons—the largest production in history.

WHERE TO FIND MARKETS & PRICES

	News	Prices		News	Prices
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*Current prices were published in the May 11 issue and will appear in subsequent issues.

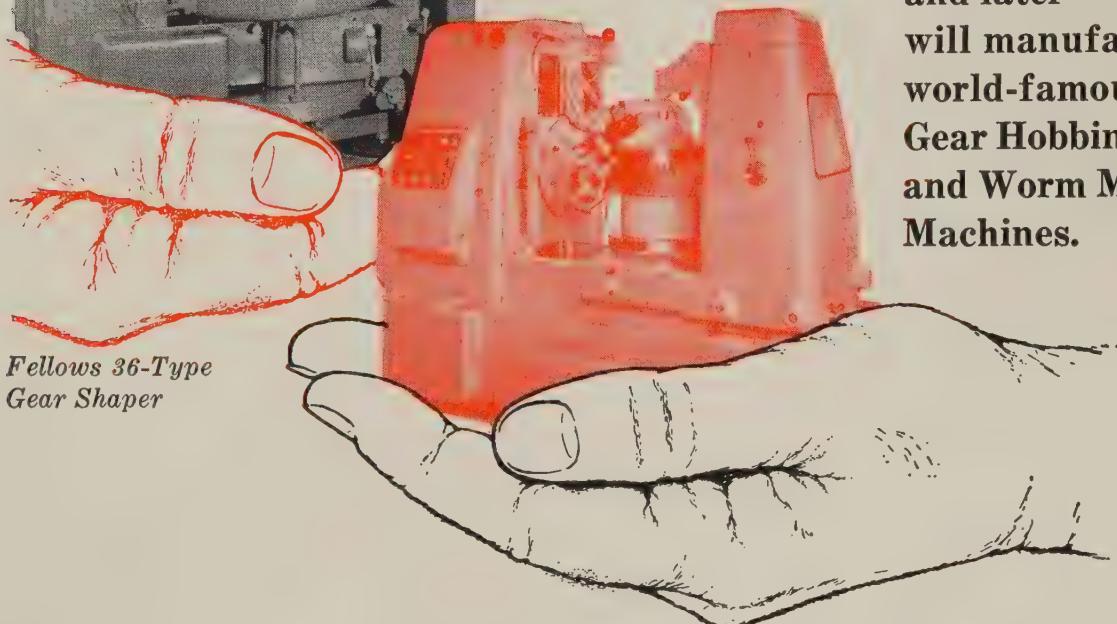
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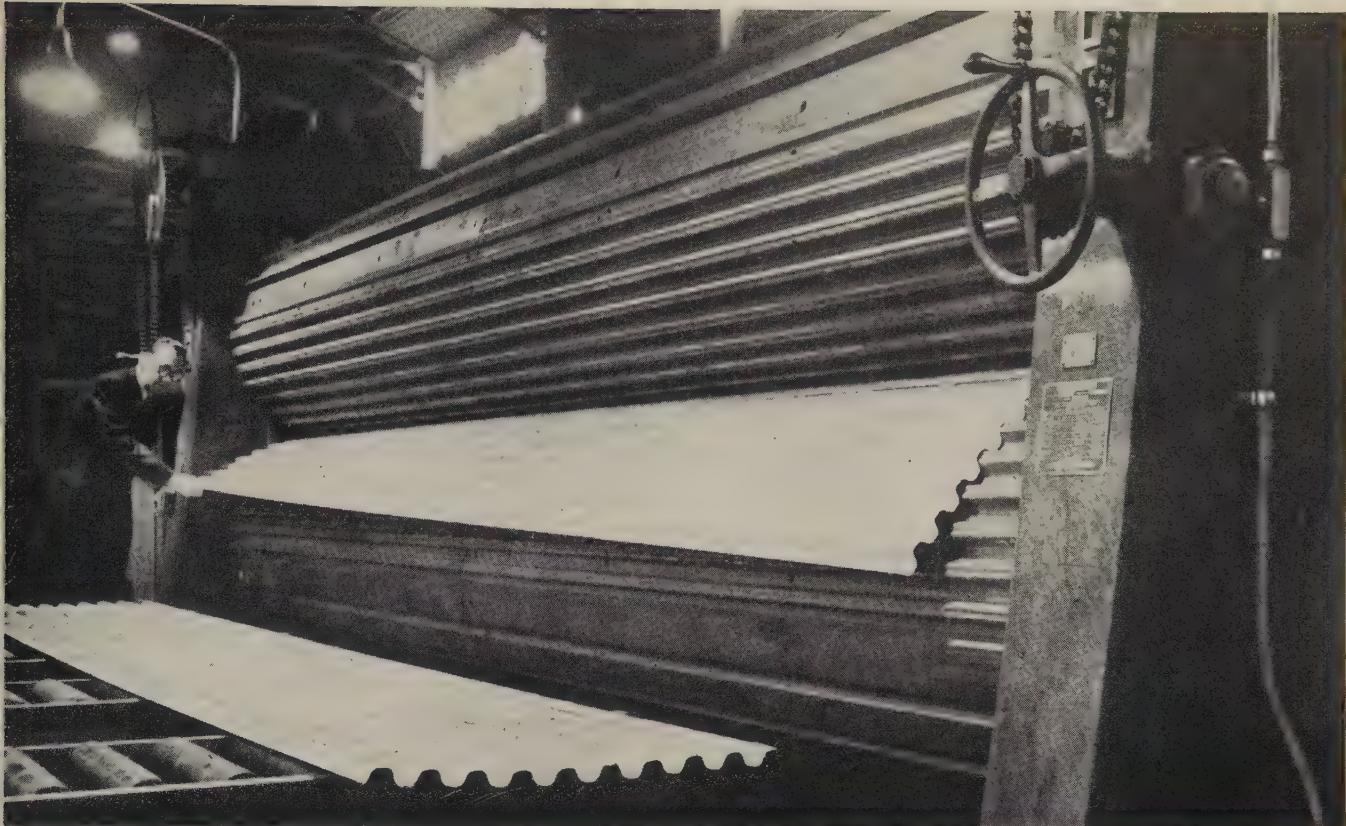
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Granite City Steel Shapes Its Future

TWO CONCERTED growth programs since World War II have paid off for Granite City Steel Co., Granite City, Ill., a firm which once had to decide whether to stay in the steel business or get out. Growing into its bigger shoes, Granite City Steel has boosted ingot capacity and production three times faster than the steel industry average.

As one of the smaller U. S. flat rolled producers, Granite City has to compete directly with bigger steelmakers. To do so, it set out to create a single plant large and efficient enough to compete with any multiplant rival. Effectiveness of the programs was proved in 1958. Operating at 88 per cent of capacity, it held its earnings within 6 per cent of 1957's. Near the end of 1958, profit margins began to climb back toward the high levels of 1955-56.

• Program one called for heaviest

construction between 1951-1953.

Physical growth included installation of a new cold strip mill; purchase and improvement of a nearby merchant blast furnace plant; a boost in open hearth capacity, and replacement of antiquated hot rolling equipment.

At the outset of the program, Granite City's steelmaking capacity stood at 500,000 annual tons—290,000 tons in three wartime open hearths built by the government, 210,000 tons in nine other old open hearths. By 1954, capacity was boosted to 1,080,000 tons in seven large open hearths. (The company bought the three government furnaces and built four new ones.)

• Program two rounded out new plant facilities, enabling the company to increase ingot capacity 47 per cent this year.

Granite City opened phase two of its growth plan in 1955 with a

new blast furnace. Since then, the firm has built a new continuous galvanizing line, a new hot coiler for production of wider sheets and plates, and has strengthened the entire cold rolling operation. Capacity to produce cold rolled products has been raised by one third.

Open hearth production is going up. Increased hot metal supply, enlargements, and the greater use of oxygen will boost annual ingot capacity to 1,584,000 tons by the end of this year.

• With basic construction completed, current emphasis is on upgrading finishing departments.

Early expansion gave Granite City a bigger supply of cold rolled steel. Attention is now centered on the tin plate and galvanized sheet departments. A new coil preparation line permits the shipping of tin plate in coil forms. A second electrolytic tin line with 50 per cent

greater capacity than the present line, is under construction to keep up with a brisk demand from can manufacturers.

A major revamping of the continuous galvanizing line last March has increased capacity and improved quality. New equipment includes a coiler at the end of the line and a new furnace. Improvements in the galvanizing line are aimed at eventually bringing the company into production of flat galvanized sheets, although Granite City will remain a major producer

of galvanized roofing and siding and corrugated sheets.

- Granite City's finances have improved steadily since the massive outlays for construction in program one.

That period was financed by long term mortgage loans and debentures, by two issues of preferred stock (one since converted to common), and by various short term obligations that have been paid.

Program two, as well as current work on the tin line, will be paid

off through retained earnings and depreciation.

Steelmen Concerned Over Rising Tide of Imports

Foreign steel is coming into this country in steady volume. Steelmen in the Great Lakes area are expressing concern over the mounting tide of imports coming in via the St. Lawrence Seaway. A Dutch ship last week arrived at Buffalo with a cargo of used steel rails. A similar shipment arrived the week before.

Most overseas mills are reported promising delivery within three to four months, except on merchant bars, which are on a five-month schedule. One British mill offers delivery in 10 weeks on wide flange beams.

With a strike at steel mills in the U. S. threatening, considerable interest is being shown by consumers in foreign sources of steel, and foreign prices. The following is the current list of prices quoted by Canadian mills:

MILL BASE PRICES (f.o.b. Hamilton, Ont.)

	Per Net Ton
Blooms, billets, slabs (carbon forging)	\$97.00
Blooms, billets, slabs—alloy	135.00
Wire rods, $\frac{7}{32}$ in. to under $\frac{1}{4}$ in.	5.30
Wire rods, $\frac{1}{4}$ in. to $\frac{47}{64}$ in.	5.70
Wire rods, alloy	6.40
Bars & small shapes, merchant quality	5.40
Bars & small shapes, special quality	5.85
Bars & small shapes, alloy	6.40
Bar mill bands	5.40
Bar mill bands, alloy	8.05
Structural angles and zees	5.40
Plates, carbon	5.45
Hot rolled sheets	5.00
Hot rolled strip	5.00
Cold rolled sheets	6.35
Cold rolled strip	6.35
Galvanized sheets, standard quality	6.70
Galvanized sheets, culvert quality	7.00
Galvanized sheets, colorbound	6.60
Enameling sheets	7.45
Electrical sheets and coils	
Field grade	9.00
Armature grade	9.50
Electrical grade	10.15
Common coke tin plate	10.60
Electrolytic tin plate	9.10
Black plate	8.30

Steel Bars . . .

Bar Prices, Page 183

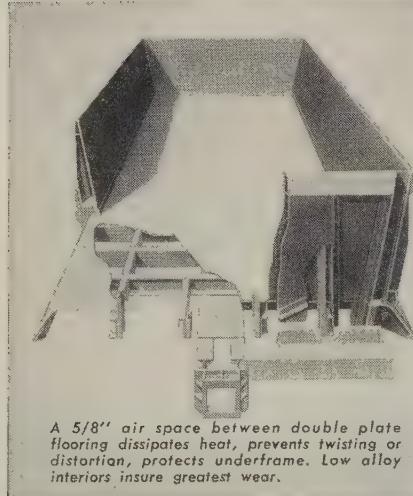
Commercial steel bars are moving at a fast pace, but new orders appear to be less active. Most concern of consumers is over shipments against orders they placed for delivery this quarter. They want to be sure of adequate supplies in event there's a steel strike at the end of June. They also want to protect themselves against possible higher prices.

Most of the tonnage on produc-

MAGOR

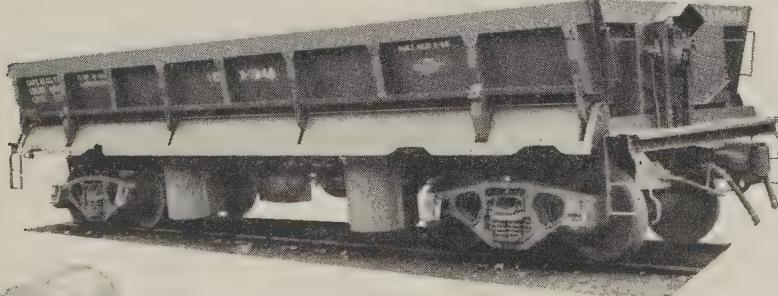
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ers' books will be delivered, but there'll be a little carryover into the third quarter. Defense requirements are expected to be heavier in the second half.

Demand for cold-finished bars continues strong, and producers have little tonnage open for delivery over the rest of this quarter. The few open spots in June books are being filled with orders from customers who need steel for immediate use. Service center demands have picked up markedly but not as much as had been expected. Among the most active buyers are the automotive suppliers, fastener makers, appliance manufacturers, farm and textile machinery builders.

Users are beginning to show interest in the third quarter. Those who can forecast their needs are ordering for July and August. They probably won't need steel before September, but ordering now may assure them of early delivery after a strike. This is not true all around. Some steelmakers have advised customers their deliveries are running four to five weeks late. As a consequence, July will be used as a catch-up month, which means orders specifying July shipment probably won't be rolled as originally scheduled.

Cold finishers say the hot mills are behind schedule on about 20 per cent of the material they've ordered.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 184 & 185

• SHEET order backlogs at Pittsburgh are shrinking as producers continue to ship more tonnage than they're booking. Slowdowns and operational problems have prevented some mills from keeping their delivery commitments. A leading maker says he won't be able to ship May orders until June, and June orders until July.

"We're a month behind on flat rolled," a sales executive comments, "and customers are on our backs because they're using steel faster than they had expected. They don't have enough on hand to maintain production, to say nothing about building a surplus against the strike threat. Since the first of the year, one of our customers has stretched his workweek from 35 to 60 hours."

• Expect Light Carryovers—In gen-

eral, while schedules for the current quarter are filled, most producers' carryovers at the end of June won't run more than two weeks on the major grades of sheets. One eastern mill's carryover won't run much more than a week.

The big question is whether the mills will be able to sustain production the remainder of this quarter. On previous occasions when a strike threatened, sporadic walkouts and slowdowns in the final two weeks of the labor negotiations restricted output.

Sellers are still accepting tonnage

for July, but there's still open capacity for that month. However, fair orders are coming in for August and September shipment. Regular customers are coming in for normal third quarter tonnages, but there's no urgency to their ordering. Market analysts at a Pittsburgh mill think third quarter operations will average about 65 per cent of capacity, if there's no strike.

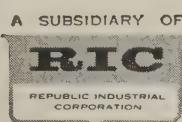
• Significant Development — Top "brass" of consuming companies again are pressuring steelmakers for deliveries. Such action hasn't

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been in vogue since steel products went from tight to easy supply several years ago.

One reason for the pressure: Deliveries in the area are running at least four weeks behind on hot rolled and galvanized sheets. The mills are not receiving any cancellations of orders on books, and they're not expecting any.

• Not Worried—Appliance manufacturers are consuming substantial tonnage, but do not appear particularly worried about stocks. They

think they will have enough to see them through a strike emergency. This is also true of manufacturers of furniture, shelving, and containers. Makers of doorbucks, though, are pressing the mills for more tonnage.

The Quartermasters' Depot, Columbus, Ohio, will close June 2 on 125,000 steel drums (55 gallon) made of 16 gage sheets.

Tin Plate . . .

Tin Plate Prices, Page 185

Tin plate producers figure that

April, May, and June shipments will be 35 per cent more than production. They will be cleaned out of stocks by June 30. Consumers have been moving tin plate freely into their plants over the three-month period to avoid the risk of transportation snags likely to be experienced in June.

Distributors . . .

Prices, Page 188

The new system of pricing based on the combined application of item extras and order quantity discounts is gaining followers. It was put into effect at Pittsburgh by Joseph T. Ryerson & Son Inc. at the start of this month (see STEEL, May 18, p. 141).

U. S. Steel Supply Div., U. S. Steel Corp., has taken similar action at Pittsburgh and Cleveland.

Distributors are booking a substantial volume of business, and they expect to do even better before the end of this quarter, especially as the steel strike deadline nears. In some cases they are getting business that would normally go to the mills, but, generally, the service centers are turning away mill-size orders, preferring to hold their stocks for regular customers.

Midwestern observers think a shortage of structurals may be experienced during the second half. Shapes are not usually stocked heavily by fabricators but are ordered to meet the requirements of individual jobs.

Rails, Cars . . .

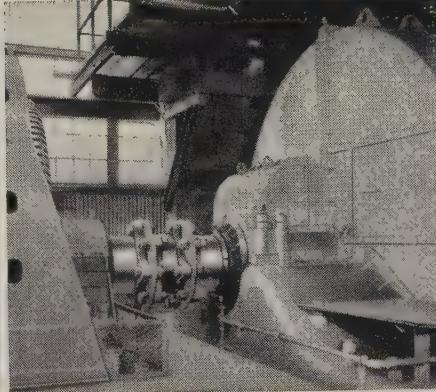
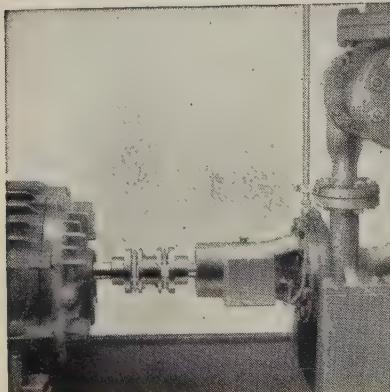
Track Material Prices, Page 186

The Pennsylvania Railroad has entered a lease agreement with General American Transportation Corp. on 1700 gondolas (52 ft each), to be built at General American's East Chicago plant. Value of the cars will be about \$16.5 million.

The cars will be completed this year and will be leased for 20 years, with the railroad having an option to renew for an additional ten years.

The Pennsylvania also has leased 1000 hoppers from the Pullman-Standard Car Mfg. Co., Chicago, and 300 flatcars from the General Steel Castings Corp.

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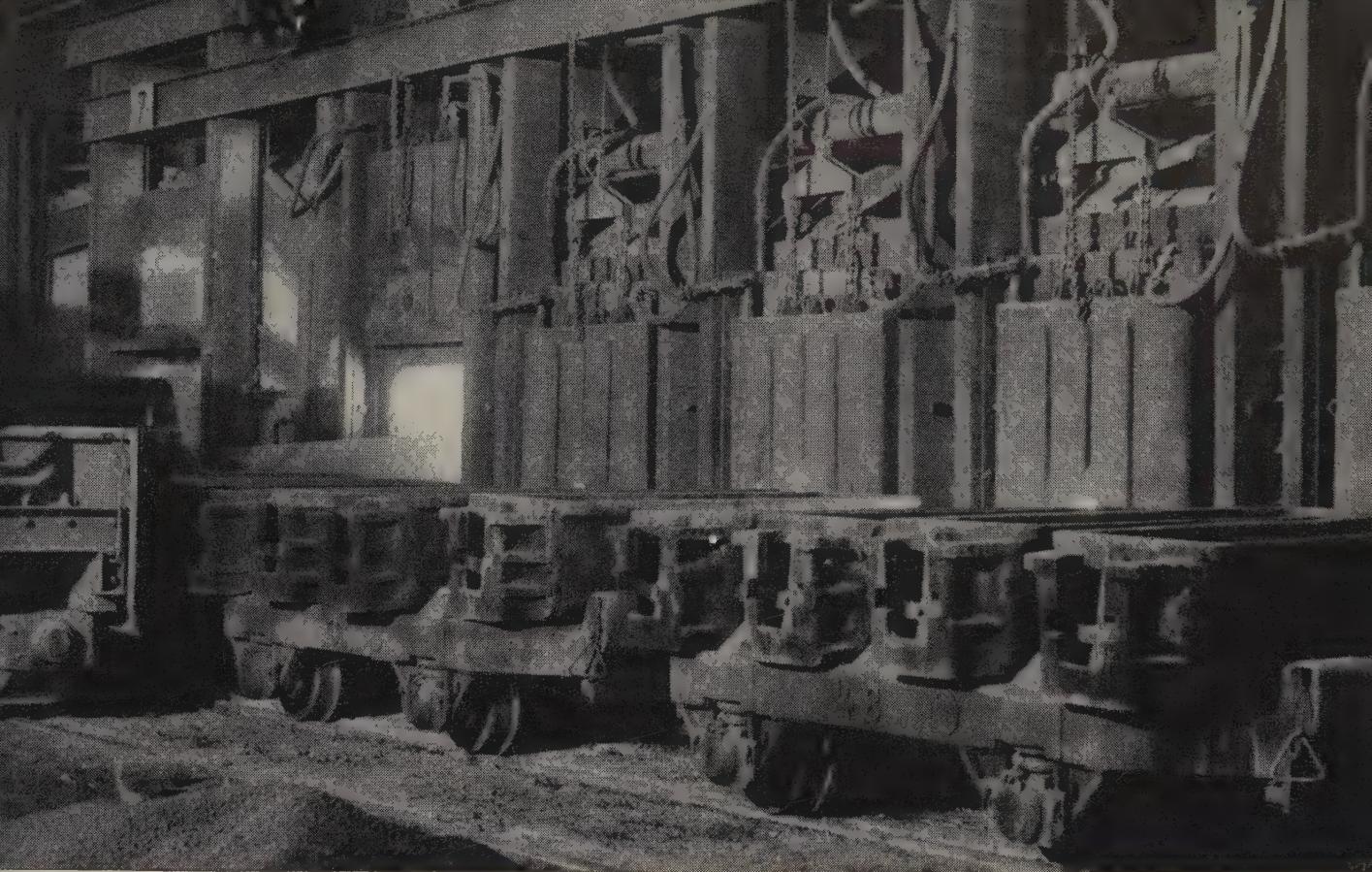
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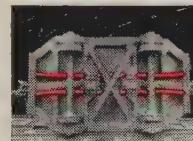
As illustrated in the typical four-box car shown here, the advantages of these design features—plus the rugged durability of all-welded *rolled* steel construction—make any size USS Charging-Box Car a profitable investment.

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Box girder construction: Two channel sections, welded toe-to-toe, provide a frame far stronger than the ordinary angle or channel frame. This box frame is used under both the sides and ends of the car.



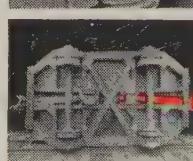
Double center sills: Two channels, back to back, run the entire length of the car. All cross members are welded to these sills, providing superior longitudinal rigidity.



X-frame bracing: These cross braces tie the box girder frame and the center sills together for additional strength and rigidity.



Spring pockets: Over each wheel, pockets are built into the bottom of the frame and "boxed in" on all sides. Coil springs are set into these pockets. This construction permits vertical, but no lateral, movement of the springs.



Long-shanked couplers: Pivot points of couplers are *behind* each axle. This permits turning the car on a short radius curve with less wheel flange pressure than with a short-shanked coupler.



United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

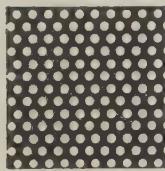
United States Steel

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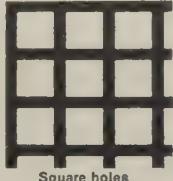
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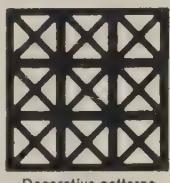
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Tubular Goods . . .

Tubular Goods Prices, Page 187

Pittsburgh district mills are sold out for the first half on all tubular products, except drill pipe, standard seamless, and continuous weld. One maker is still taking orders for late June shipment of butt-weld (by rail only), but a sales official says he's not sure the mill can get it out.

Although producers are booked up solidly through June on oil country tubing and casing, they aren't entering much business on their books for third quarter. The big oil companies are under no pressure to buy because suppliers won't sell monthly quotas set aside for them without giving ample warning. If a strike is averted, the summer will undoubtedly be a period of inventory reduction.

Demand for line pipe will be substantial the rest of the year, but there are still openings in third and fourth quarter books. It's unlikely any pipeline projects will be seriously delayed by a shortage of steel unless there's a lengthy strike. A leading producer will run 18 in. pipe in June; it has nothing scheduled beyond.

Texas pressure and soil pipe plants are operating at high levels. Oil country goods suppliers are also experiencing an upturn in demand as drilling rises. Hughes Tool Co.'s survey shows the active rig count for the U. S. climbed to a 1959 peak for the sixth straight week. At 2138, the total was four above the previous week's figure and 341 above that in the corresponding week a year ago.

Stainless Steel . . .

Stainless Steel Prices, Page 187

The buying rush in stainless has slowed considerably, but there's still a lot of jockeying for priority on deliveries. Although producers have been shipping at a record pace, they are a week or two behind on deliveries of sheets and strip.

Buyers seem fairly well satisfied with their inventories. Autobuilders warned suppliers early in the year to be prepared for a 90 day steel strike. In other industries, users have enough steel to last about two months.

Steelmakers are solidly booked up for the first half on all products.

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Sheets and strip have been sold out for weeks. Because demand reflects heavy consumption as well as inventory building, customers are ordering at a brisk rate for July and August shipment. If a strike is averted, cancellations will be few. Bars were available for late June delivery as recently as two weeks ago; now they're sold out too.

Stainless producers think the fourth quarter may be as good as the second, even though buying won't have the artificial stimulus that strike hedging provides. They look for strong demand from the service centers and from manufacturers of restaurant and hospital equipment.

Plates . . .

Plate Prices, Page 183

Military installations are calling for sizable tonnages of plates. One recent award in the Pacific Northwest involved 1000 tons, and several others are pending in that district.

Tank requirements are reported heavier in New England, offsetting to some extent a decline in shipyard buying, except for naval construction. Fabricators of butane tanks, among others, have entered the plate market in the Southwest with substantial orders. Area producers are filling their third quarter order books rapidly.

Order carryovers into third quarter will be substantial, and mill representatives say they do not expect severe cancellations if a strike is averted.

Sheared plate schedules are filled at most mills through the rest of this quarter, and all the tonnage booked for June shipment will not be cleared.

Warehouse distributors anticipate improved demand for plates in event mill production is halted by a strike at midyear.

James Russell Engineering Works Inc., Boston, will fabricate 4600 tons, 30 in. caisson pipe, for the Prudential Tower foundations, Boston. Bethlehem Steel will supply the plates.

Iron Ore . . .

Iron Ore Prices, Page 190

As traffic through the St. Lawrence Seaway increases, larger cargoes of Labrador iron ore are being brought into the Buffalo area. Small



POWER BRUSH CAMSHAFT FINISHING SETUP
was designed and built by Universal Camshaft Co., Muskegon Heights, Michigan. It incorporates lathe bed, air cylinder, 50 hp motor and

a gang-unit of 14 Osborn Disc-Center® brushes. Operation deburrs cams and cleans plating chips from steel shafts automatically.

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An operator simply loads the steel shaft into a fixture. The Osborn Disc-Center® Brush unit drops against the work at pre-set pressure and time cycle . . . also reciprocates back and

forth along the shaft. This action allows deburring cams of various type steel shafts without re-spacing the brushing unit. Plating chips are thoroughly cleaned from the main shaft at the same time.

With modern Osborn Power Brushing — this "impossible" job became a high-output, low-cost, quality-controlled operation.

An Osborn Brushing Analysis — made in your plant at no obligation — can pinpoint new savings and better finishing methods for you, too. Write us for details. *The Osborn Manufacturing Company, Dept. S-8, Cleveland 14, Ohio.*

Osborn Brushes



POWER, PAINT AND MAINTENANCE BRUSHES • BRUSHING METHODS
BRUSHING MACHINES • FOUNDRY PRODUCTION MACHINERY

type canalers, which formerly carried about 2250 tons, are moving up the Buffalo River to Republic Steel Corp.'s works with 4000 tons each. Seven of the vessels arrived recently to get Republic's Labrador ore imports off to a fast start.

The shipments were topped by the arrival of the *Seaway Discoverer* with 6750 tons, the largest cargo brought in at Buffalo by an ocean carrier. The British ship dropped off a portion of her cargo en route so she could conform with Republic's draft requirements.

Steel Use in Aircraft Faces New Competition

Steel, which competes with aluminum as the basic material in high speed aircraft, missiles, and space vehicles, will face increased competition from other metals. That's what L. P. Spalding, chief materials engineer, Los Angeles Div., North American Aviation Co., told a San Francisco meeting of the Commercial Research Committee, American Iron & Steel Institute.

He said titanium, columbium, molybdenum, tantalum, tungsten, beryllium, have strong potential.

North American's B-70 manned bomber may use as much as 50 to 75 tons of steel products, Mr. Spalding said. Steel was selected because of its resistance to high temperatures as well as its structural efficiency.

But, Mr. Spalding warned, the steel industry must make constant metallurgical advances to meet future requirements.

Wire . . .

Wire Prices, Pages 185 & 186

Except for merchant products, most wire buying is for third quarter needs, with delivery depending on production conditions. Many users of industrial grades of wire are entering orders on producers' books to assure themselves of position in mill schedules later this year. Should there be a strike,

carryover tonnage will disrupt scheduling to some extent.

Some producers can still accept wire rope orders for June shipment. Converters have built up a 60-day inventory of rods in many cases. A steel strike will not entirely halt wire production for several weeks after it starts. Some smaller wire drawers will continue to operate, depending on the extent of their rod supplies.

Finished Steel Product Shipments—March, 1959

(Net tons)

Products:	Carbon	Alloy	Stainless	1959	1958
Ingots	15,016	13,056	2,224	72,769	72,622
Blooms, etc.	116,634	52,609	1,364	430,385	314,879
Tube rounds	970	242	1	4,577	2,008
Skelp	1,378	.....	.....	12,409	19,889
Wire rods	135,300	4,151	939	341,633	189,857
Structurals	513,479	5,733	12	1,235,610	1,004,246
Steel piling	34,984	.....	.....	89,394	91,913
Plates	604,345	43,508	3,224	1,718,047	1,429,145
Rails—standard	96,729	.....	.....	222,656	146,839
Rails—other	4,600	.....	.....	11,252	9,251
Joint bars	4,144	.....	.....	9,448	11,494
Tie plates	22,292	.....	.....	45,716	33,796
Track spikes	6,190	.....	.....	13,909	11,515
Wheels	21,591	40	.....	51,685	56,168
Axles	11,185	51	.....	22,846	32,474
Bars—hot rolled	645,074	175,979	4,297	2,104,881	1,252,928
Bars—reinforcing	216,829	.....	.....	500,500	365,933
Bars—cold drawn	129,363	23,930	5,980	414,775	243,316
Tool steel	1,146	8,438	.....	24,778	17,973
Standard pipe	249,364	117	.....	622,096	452,435
Oil country goods	214,147	47,129	.....	636,911	315,746
Line pipe	306,889	160	.....	755,974	605,294
Mechanical tubing	58,586	26,552	354	224,073	135,958
Pressure tubing	21,277	4,283	1,043	75,642	68,158
Drawn wire	278,295	4,285	3,347	725,116	513,699
Nails & staples	42,591	.....	2	103,577	93,857
Barbed wire	6,911	.....	.....	15,605	16,060
Woven fence	20,655	.....	.....	45,662	47,455
Bale ties, etc.	5,813	.....	.....	19,137	6,692
Black plate	69,533	.....	.....	178,752	161,141
Tin & terne plate—hot dipped	46,706	.....	.....	101,612	97,700
Tin plate—electro	597,408	.....	.....	1,457,243	1,291,322
Sheets—HR	890,202	30,644	6,660	2,442,180	1,360,706
Sheets—CR	1,536,944	5,509	14,589	4,225,560	2,285,106
Sheets—galvanized	311,961	.....	.....	872,842	550,161
Sheets—other	30,336	.....	.....	82,788	41,074
Electrical sheets & strip	5,561	64,361	.....	177,554	112,258
Strip—HR	149,584	2,836	1,903	387,731	222,316
Strip—CR	110,343	1,815	21,986	358,577	245,291
Total (1959)	7,534,355	515,408	67,925	20,835,902	.....
Total (1958)	4,153,606	259,566	35,354	.....	13,928,675

Data from the American Iron & Steel Institute.

DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

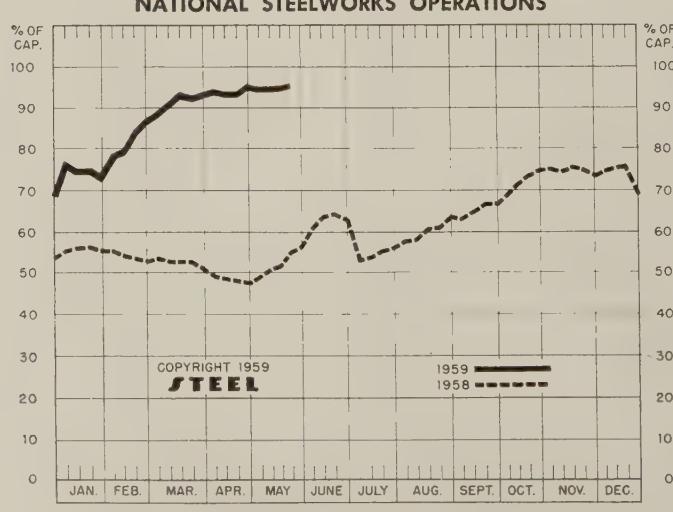
Week Ended	Same Week			1957
	May 24	Change	1958	
Pittsburgh	96.0	+ 1.5*	53	90
Chicago	94.0	+ 1.0	60	88
Eastern	97.0	0	49	94
Youngstown	96.0	0	45	81
Wheeling	94.0	+ 1.0	73.5	84.5
Cleveland	99.5	+ 2.5*	32	84
Buffalo	107.0	+ 2.0	44	52.5
Birmingham	96.0	+ 4.0	67	92.5
Cincinnati	95.5	+ 2.5*	62	80
St. Louis	103.0	+ 2.0	78.5	84.5
Detroit	98.5	- 2.0	47.5	80.5
Western	96.5	0	67	100
National Rate . . .	95.5	+ 0.5	54.5	84

INGOT PRODUCTION*

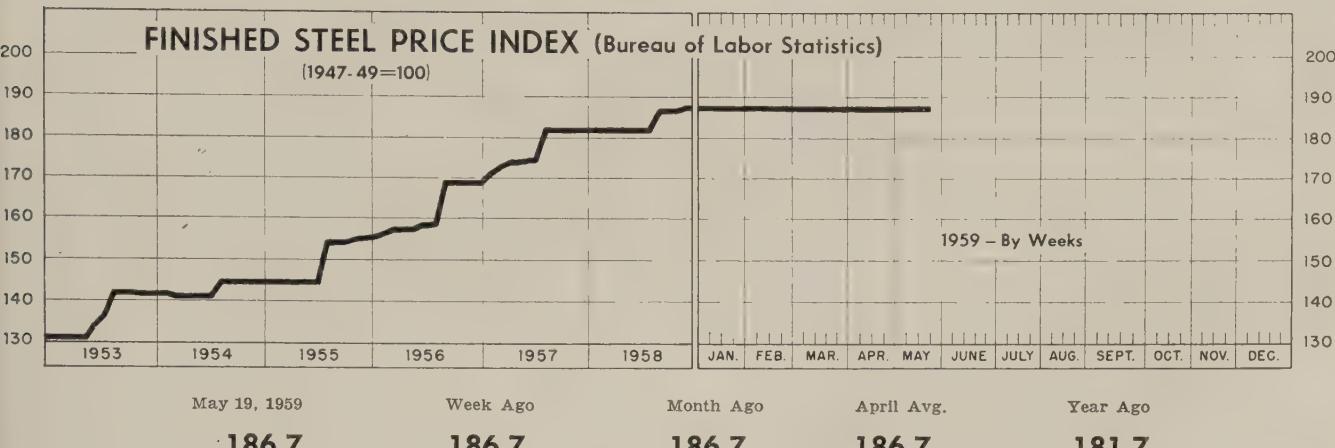
Week Ended	Week	Month	Year
May 24	Ago	Ago	Ago
INDEX	166.5	163.8	164.7
(1947-48=100)			94.8
NET TON	2,674	2,631	2,646
(In thousands)			1,523

*Change from preceding week's revised rate.
†Estimated. ‡American Iron & Steel Institute.
Weekly capacity (net tons): 2,831,331 in 1959; 2,689,173 in 1958; 2,559,490 in 1957.

NATIONAL STEELWORKS OPERATIONS



Price Indexes and Composites



AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended May 19

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	\$5.825	Bars, Reinforcing	6.385
Rails, Light, 40 lb	7.292	Bars, C.F., Carbon	10.710
Tie Plates	6.875	Bars, C.F., Alloy	14.125
Axles, Railway	10.175	Bars, C.F., Stainless, 302 (lb)	0.570
Wheels, Freight Car, 33 in. (per wheel)	62.000	Sheets, H.R., Carbon	6.350
Plates, Carbon	6.350	Sheets, C.R., Carbon	7.300
Structural Shapes	6.167	Sheets, Galvanized	8.615
Bars, Tool Steel, Carbon (lb)	0.560	Sheets, C.R., Stainless, 302 (lb)	0.658
Bars, Tool Steel, Alloy, Oil Hardening Die (lb)	0.680	Sheets, Electrical	12.625
Bars, Tool Steel, H.R. Alloy, High Speed, W 6.75, Cr 4.5, V 2.1, Mo 5.5, C 0.060 (lb)	1.400	Strip, C.R., Carbon	9.489
Bars, Tool Steel, H.R. Alloy, High Speed, W18, Cr 4, V 1 (lb)	1.895	Strip, C.R., Stainless, 430 (lb)	0.480
Bars, H.R., Alloy	10.775	Strip, H.R., Carbon	6.250
Bars, H.R., Stainless, 303 (lb)	0.543	Pipe, Black, Butt-weld (100 ft)	19.905
Bars, H.R., Carbon	6.675	Pipe, Galv., Butt-weld (100 ft)	23.253
		Pipe, Line (100 ft)	199.530
		Casing, Oil Well, Carbon (100 ft)	201.080
		Casing, Oil Well, Alloy (100 ft)	315.213

Tubes, Boiler (100 ft) . . .	51.200	Black Plate, Canmaking Quality (95 lb base box) . . .	7.900
Tubing, Mechanical, Carbon (100 ft)	27.005	Wire, Drawn, Carbon . . .	10.575
Tubing, Mechanical, Stainless, 304 (100 ft)	205.608	Wire, Drawn, Stainless, .430 (lb)	0.865
Tin Plate, Hot-dipped, 1.25 lb (95 lb base box) . . .	10.100	Bale Tie (bundles)	7.987
Tin Plate, Electrolytic, 0.25 lb (95 lb base box)	8.800	Nails, Wire, &d Common	9.825
		Wire, Barbed (80-rod spool)	8.722
		Woven Wire Fence (20-rod roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	May 20	Week	Month	Year	5 Yr
	1959	Ago	Ago	Ago	Ago
Index (1935-39 avg=100) ..	247.82	247.82	247.82	239.15	189.74
Index in cents per lb	6.713	6.713	6.713	6.479	5.140

STEEL's ARITHMETICAL COMPOSITES*

Finished Steel, NT	\$149.96	\$149.96	\$149.96	\$145.42	\$113.70
No. 2 Fdry. Pig Iron, GT	66.49	66.49	66.49	66.49	56.54
Basic Pig Iron, GT	65.99	65.99	65.99	65.99	56.04
Malleable Pig Iron, GT	67.27	67.27	67.27	67.27	57.27
Steelmaking Scrap, GT	33.33	33.33	34.67	33.50	28.33

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL

FINISHED STEEL	May 20 1959	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.675	5.675	5.675	5.425	4.15
Bars, H.R., Chicago	5.675	5.675	5.675	5.425	4.15
Bars, H.R., deld., Philadelphia	5.975	5.975	5.975	5.725	4.405
Cars, C.F., Pittsburgh	7.65*	7.65*	7.65*	7.30*	5.20
Shapes, Std., Pittsburgh	5.50	5.50	5.50	5.275	4.10
Shapes, Std., Chicago	5.50	5.50	5.50	5.275	4.10
Shapes, deld., Philadelphia	5.77	5.77	5.77	5.545	4.38
Plates, Pittsburgh	5.30	5.30	5.30	5.10	4.10
Plates, Chicago	5.30	5.30	5.30	5.10	4.10
Plates, Coatesville, Pa.	5.30	5.30	5.30	5.10	4.10
Plates, Sparrows Point, Md.	5.30	5.30	5.30	5.10	4.10
Plates, Claymont, Del.	5.30	5.30	5.30	5.10	4.10
Sheets, H.R., Pittsburgh	5.10	5.10	5.10	4.925	3.925
Sheets, H.R., Chicago	5.10	5.10	5.10	4.925	3.925
Sheets, C.R., Pittsburgh	6.275	6.275	6.275	6.05	4.775
Sheets, C.R., Chicago	6.275	6.275	6.275	6.05	4.775
Sheets, C.R., Detroit	6.275	6.275	6.275	6.05-6.15	4.975
Sheets, Galv., Pittsburgh	6.875	6.875	6.875	6.60	5.275
Strip, H.R., Pittsburgh	5.10	5.10	5.10	4.925	4.425
Strip, H.R., Chicago	5.10	5.10	5.10	4.925	3.925
Strip, C.R., Pittsburgh	7.425	7.425	7.425	7.15	5.45
Strip, C.R., Chicago	7.425	7.425	7.425	7.15	5.70
Strip, C.R., Detroit	7.425	7.425	7.425	7.25	5.65
Wire, Basic, Pittsburgh	8.00	8.00	8.00	7.65	5.525
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.95	6.55
Tin plate (1.50 lb.) box, Pitts.	\$10.65	\$10.65	\$10.65	\$10.30	\$8.95

PIG IRON, Gross Ton	May 20 1959	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts	\$67.00	\$67.00	\$67.00	\$67.00	\$57.00
Basic, Valley	66.00	66.00	66.00	66.00	56.00
Basic, deld., Phila.	70.41	70.41	70.41	70.41	59.66
No. 2 Fdry, NevilleIsland, Pa.	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, Cnicago	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, deld., Phila.	70.91	70.91	70.91	70.91	60.16
No. 2 Fdry, Birm.	62.50	62.50	62.50	62.50	52.88
No. 2 Fdry(Birm.)deld., Cin.	70.20	70.20	70.20	70.20	60.43
Malleable, Valley	66.50	66.50	66.50	66.50	56.50
Malleable, Chicago	66.50	66.50	66.50	66.50	56.50

6CBAB Cross-Top (Including broken's commission)

SILVER, CASH, NEW, EXCLUDING OTHERS' COMMERCIAL.							
No.	1	Heavy Melt, Pittsburgh	\$34.50	\$34.50	\$36.50	\$32.50	\$30.50
No. 1	Heavy Melt, E. Pa. . .	33.50	33.50	33.50	34.50	23.00	
No. 1	Heavy Melt, Chicago .	32.00	32.00	34.00	33.50	31.50	
No. 1	Heavy Melt, Valley ..	35.50	35.50	37.50	36.50	29.50	
No. 1	Heavy Melt, Cleve. . .	33.50	33.50	35.00	33.00	28.50	
No. 1	Heavy Melt, Buffalo.	31.50	31.50	34.50	26.50	25.50	
Rails, Rerolling, Chicago ..	55.50	55.50	57.50	51.50	42.00		
No. 1 Cast, Chicago	47.50	46.50	44.50	40.50	38.50		

⁸Including 0.35% for special quality

SEMI-FINISHED STEEL

Billets, forging, Pitts. (NT)	\$99.50	\$99.50	\$99.50	\$96.00	\$75.50
Wire rods $\frac{7}{8} \text{--} \frac{1}{4}$" Pitts.	6.40	6.40	6.40	6.15	4.525

WITH TRICHLOR . . .

columbia-southern can cut your degreasing costs!

**EVERY \$6,400 YOU
SAVE IN DEGREASING
COSTS IS WORTH A
\$100,000 ORDER**

**COLUMBIA-SOUTHERN
CAN CUT THESE COSTS
FOR YOU**

SO, WHY WAIT?

Pretax earnings average 6.4% or \$6,400 on each \$100,000 of product you sell after raw materials, sales expenses, overhead and miscellaneous are deducted.*

Every time you save \$6,400 in your degreasing costs, it is the equivalent of your net on a \$100,000 order.

Columbia-Southern is a foremost name in degreasing knowledge and experience, product quality, cost-saving operation. Our Technical Service specialists will be glad to examine your degreasing process and recommend ways in which you can effect savings.

If a Columbia-Southern representative has not yet reviewed your degreasing operation, his visit in the near future will more than likely save you money. So, why wait? Write today to "Trichlor" at our Pittsburgh address.

*Based on Manufacturing Corporation Statistics for the first half of 1958.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

Subsidiary of Pittsburgh Plate Glass Company • One Gateway Center, Pittsburgh 22, Pennsylvania

Steel Prices

Mill prices as reported to STEEL, May 20, cents per pound except as otherwise noted. Changes shown in *italics*. Code number following mill point indicates producing company. Key to producers, page 184; footnotes, page 186.

SEMI-FINISHED

INGOTS, Carbon, Forging (INT)
Munhall, Pa. U5 \$76.00

INGOTS, Alloy (INT)

Detroit S41 \$82.00
Economy, Pa. B14 82.00

Farrell, Pa. S3 82.00
Lowellville, O. S3 82.00

Midland, Pa. C18 82.00
Munhall, Pa. U5 82.00

Sharon, Pa. S3 82.00

BILLETS, BLOOMS & SLABS

Carbon, Re-rolling (INT)
Bartonville, Ill. K4 \$82.00

Bessemer, Pa. U5 80.00

Buffalo R2 80.00

Claireton, Pa. U5 80.00

Ensley, Ala. T2 80.00

Fairfield, Ala. T2 80.00

Fontana, Calif. K1 90.50

Gary, Ind. U5 80.00

Johnstown, Pa. B2 80.00

Lackawanna, N.Y. B2 80.00

Munhall, Pa. U5 80.00

Owensboro, Ky. G8 80.00

S. Chicago Ill. R2, U8 80.00

S. Duquesne, Pa. U5 80.00

Sterling, Ill. N15 80.00

Youngstown R2 80.00

Carbon, Forging (INT)

Bessemer, Pa. U5 \$99.50

Buffalo R2 99.50

Canton, O. R2 102.00

Claireton, Pa. U5 99.50

Conshohocken, Pa. A3 104.50

Ensley, Ala. T2 99.50

Fairfield, Ala. T2 99.50

Farrell, Pa. S3 99.50

Fontana, Calif. K1 109.00

Gary, Ind. U5 99.50

Houston S5 104.50

Johnstown, Pa. B2 99.50

Lackawanna, N.Y. B2 99.50

Los Angeles B3 109.00

Midland, Pa. C18 99.50

Munhall, Pa. U5 99.50

Owensboro, Ky. G8 99.50

Seattle B3 109.00

Sharon, Pa. S3 99.50

S. Chicago R2, U5, W14 99.50

S. Duquesne, Pa. U5 99.50

S. San Francisco B3 109.00

Warren, O. C17 99.50

Alloy, Forging (INT)

Bethlehem, Pa. B2 \$119.00

Bridgeport, Conn. C32 119.00

Buffalo R2 119.00

Canton, O. R2, T7 119.00

Conshohocken, Pa. A3 128.00

Detroit S41 119.00

Economy, Pa. B14 119.00

Farrell, Pa. S3 119.00

Fontana, Calif. K1 140.00

Gary, Ind. U5 119.00

Houston S5 124.00

Ind. Harbor, Ind. Y1 119.00

Johnstown, Pa. B2 119.00

Lackawanna, N.Y. B2 119.00

Fontana, Calif. K1 139.00

Gary, Ind. U5 119.00

Lowellville, O. S3 119.00

Massillon, O. R2 119.00

Midland, Pa. C18 119.00

Munhall, Pa. U5 119.00

Owensboro, Ky. G8 119.00

Seattle B3 119.00

Sharon, Pa. S3 119.00

S. Chicago R2, U5, W14 119.00

S. Duquesne, Pa. U5 119.00

Warren, O. C17 122.50

SKELP

Aliquippa, Pa. J5 5.05

Munhall, Pa. U5 5.05

Pittsburgh J5 5.05

Warren, O. R2 5.05

Youngstown R2, U5 5.05

WIRE RODS

Alabama City, Ala. R2 6.40

Aliquippa, Pa. J5 6.40

Alton, Ill. L1 6.60

Bartonville, Ill. K4 6.50

Buffalo W12 6.40

Cleveland A7 6.40

Donora, Pa. A7 6.40

Fairfield, Ala. T2 6.40

Houston S5 6.65

Indiana Harbor, Ind. Y1 6.40

Johnstown, Pa. B2 6.40

Joliet, Ill. A7 6.40

Kansas City, Mo. S5 6.65

Kokomo, Ind. C16 6.50

ROUNDS, SEAMLESS TUBE (INT)

Buffalo R2 \$122.50

Canton, O. R2 125.00

Cleveland R2 122.50

Gary, Ind. U5 122.50

S. Chicago, Ill. R2, W14 122.50

S. Duquesne, Pa. U5 122.50

Warren, O. C17 122.50

PLATES, SEAMLESS TUBE (INT)

Aliquippa, Pa. J5 5.05

Munhall, Pa. U5 5.05

Pittsburgh J5 5.05

Warren, O. R2 5.05

Youngstown R2, U5 5.05

PLATES, SEAMLESS TUBE (INT)

Aliquippa, Pa. J5 5.05

Munhall, Pa. U5 5.05

Pittsburgh J5 5.05

Warren, O. R2 5.05

Youngstown R2, U5 5.05

PLATES, SEAMLESS TUBE (INT)

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Warren, O. R2 5.05

Youngstown R2, U5 5.05

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Munhall, Pa. U5 5.05

Pittsburgh J5 5.05

Warren, O. R2 5.05

Youngstown R2, U5 5.05

PLATES, SEAMLESS TUBE (INT)

Aliquippa, Pa. J5 5.05

Munhall, Pa. U5 5.05

Pittsburgh J5 5.05

BARS, Reinforcing, Billet (To Fabricators)	Economy(Staybolt) B14 19.00	SHEETS, H.R. (14 Ga. & Heavier)	SHEETS, Cold-Rolled, High-Strength, Low-Alloy	SHEETS, Well Casing	
AlabamaCity, Ala. R2	5.675	McK.Rks. (S.R.) L5	14.50	Aliquippa, Pa. J5	9.725
		McK.Rks. (D.R.) L5	19.80	Ashland, Ky. A10	9.725
Atlanta A1	5.675	McK.Rks. (Staybolt) L5	20.95	Cleveland J5, R2	9.725
Birmingham C15	5.675	BARS, Rail Steel		Ecorse, Mich. G5	9.725
Buffalo R2	5.675	ChicagoHts. (3) C2, I-2 5.575		Fairfield, Ala. T2	9.725
Cleveland R2	5.675	ChicagoHts. (4) (44) I-2 5.675		Fairfield, Ala. T2	9.725
Ecorse, Mich. G5	5.675	Franklin, Pa. (3) F8	5.575	Fairless, Pa. U5	9.725
Emeryville, Calif. J7	6.425	Franklin, Pa. (4) F8	5.675	Farrell, Pa. S3	9.725
Fairfield, Ala. T2	5.675	Fontana, Calif. K1	5.575	Fontana, Calif. K1	9.725
Fairless, Pa. U5	5.825	JerseyShore, Pa. (3) J8	5.55	Gary, Ind. U5	9.725
Fontana, Calif. K1	6.375	Marion, O. (3) P11	5.575	Ind. Harbor, Ind. I-2, Y1	9.725
Ft. Worth, Tex. (4) (26) T4	5.925	Tonawanda (3) B12	5.575	Irvin, Pa. U5	9.725
Gary, Ind. U5	5.675	Tonawanda (4) B12	6.10	Lackawanna (35) B2	9.725
Houston S5	5.925			Munhall, Pa. U5	9.725
Ind. Harbor, Ind. I-2, Y1	5.675			Niles, O. S3	9.725
Johnstown, Pa. B2	5.675			Pittsburgh J5	9.725
Joliet, Ill. P22	5.675	SHEETS		S. Chicago, Ill. U5, W14	9.725
KansasCity, Mo. S8	5.925	SHEETS, Hot-Rolled Steel		Sharon, Pa. S3	9.725
Kokomo, Ind. C16	5.775	(18 Gage and Heavier)		SparrowsPoint (36) B2	9.725
Lackawanna, N.Y. B2	5.675	AlabamaCity, Ala. R2	5.10	Warren, O. R2	9.725
LosAngeles B3	6.375	Allenport, Pa. P7	5.10	Weirton, W.Va. W6	9.725
Madison, Ill. L1	5.875	Aliquippa, Pa. J5	5.10	Youngstown U5, Y1	9.725
Milton, Pa. M18	5.825	Ashland, Ky. (8) A10	5.10	SHEETS, Hot-Rolled Ingot Iron	
Minnequa, Colo. C10	6.125	Cleveland J5, R2	5.10	(18 Gage and Heavier)	
Niles, Calif. P1	6.375	Conshohocken, Pa. A3	5.15	Ashland, Ky. (8) A10	5.35
Pittsburgh, Calif. C11	6.375	Detroit (8) M1	5.10	Cleveland R2	5.875
Pittsburgh J5	5.675	Ecorse, Mich. G5	5.10	Warren, O. R2	5.875
Portland, Oreg. O4	6.425	Fairless, Pa. U5	5.15	SHEETS, Cold-Rolled Ingot Iron	
SandSprings, Okla. S5	5.925	Fairfield, Ala. T2	5.10	Cleveland R2	7.05
Seattle A24, B3, N14	6.425	Fairport, Pa. S3	5.10	Middletown, O. A10	6.775
S.Chicago, Ill. R2, W14	5.675	Fontana, Calif. K1	5.825	Warren, O. R2	7.05
S.Duquesne, Pa. U5	5.675	Gary, Ind. U5	5.10	SHEETS, Cold-Rolled Steel	
S.SanFrancisco B3	6.425	Geneva, Utah C11	5.20	(Commercial Quality)	
SparrowsPoint, Md. B2	5.675	GraniteCity, Ill. (8) G4	5.20	AlabamaCity, Ala. R2	6.275
Sterling, Ill. (1) N15	5.675	Ind. Harbor, Ind. I-2, Y1	5.10	Allenport, Pa. P7	6.275
Sterling, Ill. N15	5.775	Irvin, Pa. U5	5.10	Aliquippa, Pa. J5	6.275
Struthers, O. Y1	5.675	Lackawanna, N.Y. B2	5.10	Cleveland J5, R2	6.275
Tonawanda, N.Y. B12	6.10	Mansfield, O. E6	5.10	Conshohocken, Pa. A3	6.325
Torrance, Calif. C11	6.375	Munhall, Pa. U5	5.10	Detroit M1	6.275
Youngstown R2, U5	5.675	SparrowsPoint, Md. B2	5.10	Ecorse, Mich. G5	6.275
BARS, Reinforcing, Billet (Fabricated; To Consumers)		Portsmouth, O. P12	5.10	Fairfield, Ala. T2	6.275
Baltimore B2	7.42	Rivertown, Ill. A1	5.10	Fairless, Pa. U5	6.325
Boston B2, U8	8.15	Sharon, Pa. S3	5.10	Follansbee, W.Va. F4	6.275
Chicago U8	7.41	S.Chicago, Ill. U5, W14	5.10	Fontana, Calif. K1	7.40
Cleveland U8	7.39	Houston S5	7.60	Gary, Ind. U5	6.275
Johnstown, Pa. B2	7.33	SparrowsPoint, Md. B2	5.10	GraniteCity, Ill. G4	6.375
KansasCity, Mo. S5	7.60	Steubenville, O. W10	5.10	Ind. Harbor, Ind. I-2, Y1	6.275
Lackawanna, N.Y. B2	7.35	Warren, O. R2	5.10	Irvin, Pa. U5	6.275
Marion, O. P11	6.70	Weirton, W.Va. W6	5.10	Lackawanna, N.Y. B2	6.275
Newark, N.J. U8	7.80	Youngstown U5, Y1	5.10	Mansfield, O. E6	6.275
Philadelphia U8	7.63	SHEETS, H.R. (19 Ga. & Lighter)		Middleton, O. A10	6.275
Pittsburgh J5, U8	7.35	Niles, O. M21, S3	6.275	Newport, Ky. A2	6.275
SandSprings, Okla. S5	7.60	SHEETS, H.R., Alloy		Pittsburgh J5	6.275
Seattle A24, B3, N14	7.95	Gary, Ind. U5	8.40	Portsmouth, O. P12	6.275
SparrowsPt., Md. B2	7.33	Ind. Harbor, Ind. Y1	8.40	SparrowsPoint, Md. B2	6.275
St. Paul U8	8.17	Irvin, Pa. U5	8.40	Steubenville, O. W10	6.275
Williamsport, Pa. S19	7.25	Munhall, Pa. U5	8.40	Warren, O. R2	6.275
BARS, Wrought Iron		Newport, Ky. A2	8.40	Weirton, W.Va. W6	6.275
Economy, Pa. (S.R.) B14	14.90	Youngstown U5, Y1	8.40	Yorkville, O. W10	6.275
Economy, Pa. (D.R.) B14	18.55			Youngstown Y1	6.275

*Continuous and noncontinuous. †Continuous. †Noncontinuous.

BLUED STOCK, 29 Gage
SHEETS, Long Terne, Steel
(Commercial Quality)

BeechBottom, W.Va. W10 7.225

Gary, Ind. U5 7.225

Mansfield, O. E6 7.225

Pittsburgh J5 7.625

SparrowsPt., Md. B2 6.875†

Middleton, O. A10 7.225

Warren, O. R2 7.225

Weirton, W.Va. W6 6.875†

Yorkville, O. W10 7.225

SHEETS, Long Terne, Ingot Iron

Middleton, O. A10 7.825

Key To Producers

A1 Acme Steel Co.	C22 Claymont Plant, Wick-	J5 Jones & Laughlin Steel	P5 Pilgrim Drawn Steel	S43 Seymour Mfg. Co.
A2 Acme-Newport Steel Co.	wire Spencer Steel Div.,	J6 Joslyn Mfg. & Supply	P6 Pittsburgh Coke & Chem.	S44 Screw & Bolt Corp. of
A3 Alan Wood Steel Co.	Colo. Fuel & Iron	J7 Judson Steel Corp.	P7 Pittsburgh Steel Co.	America
A4 Allegheny Ludlum Steel	Charter Wire Inc.	J8 Jersey Shore Steel Co.	P11 Pollak Steel Co.	T2 Tenn. Coal & Iron Div.,
A5 Alloy Metal Wire Div.,	C24 G. O. Carlson Inc.	K1 Kaiser Steel Corp.	P12 Portsmouth Div.	U. S. Steel Corp.
H. K. Porter Co. Inc.	C32 Carpenter Steel of N. Eng.	K2 Keokuk Electro-Metals	Detroit Steel Corp.	T3 Tenn. Products & Chemical Corp.
A6 American Shim Steel Co.	D2 Detroit Steel Corp.	K3 Keystone Drawn Steel	P13 Precision Drawn Steel	T4 Texas Steel Co.
A7 American Steel & Wire Div., U. S. Steel Corp.	D4 Diston Div., H. K. Porter Co. Inc.	K4 Keystone Steel & Wire	P15 Pittsburgh Metallurgical	T5 Thomas Strip Div.,
A8 Anchor Drawn Steel Co.	D6 Driver-Harris Co.	K7 Kenmore Metals Corp.	P16 Page Steel & Wire Div.,	Pittsburgh Steel Co.
A9 Angel Nail & Chaplet	D7 Dickson Weatherproof	L1 Lacled Steel Co.	American Chain & Cable	T6 Thompson Wire Co.
A10 Armcro Steel Corp.	Nail Co.	L2 LaSalle Steel Co.	P17 Plymouth Steel Corp.	T7 Timken Roller Bearing
A11 Atlantic Steel Co.	D8 Damascus Tube Co.	L3 Latrobe Steel Co.	P19 Pitts. Rolling Mills	T9 Tonawanda Iron Div.,
A24 Alaska Steel Mills Inc.	D9 Wilbur B. Driver Co.	L6 Lone Star Steel Co.	P20 Prod. Steel Strip Corp.	Am. Rad. & Stan. San.
B1 Babcock & Wilcox Co.	E1 Eastern Gas&Fuel Assoc.	L7 Lukens Steel Co.	P22 Phoenix Mfg. Co.	T12 Tube Methods Inc.
B2 Bethlehem Steel Co.	E2 Eastern Stainless Steel	L8 Leschen Wire Rope Div.,	P24 Phil. Steel & Wire Corp.	T19 Techalloy Co. Inc.
B3 Beth. Pac. Coast Steel	E3 Elliott Bros. Steel Co.	H. K. Porter Co. Inc.	R2 Republic Steel Corp.	U3 Union Wire Rope Corp.
B4 Blair Strip Steel Co.	E4 Empire-Reeves Steel	M1 McLouth Steel Corp.	R3 Rhode Island Steel Corp.	U4 Universal-Cyclops Steel
B5 Bliss & Laughlin Inc.	Corp.	M4 Mahoning Valley Steel	R5 Roebling's Sons, John A.	U5 United States Steel Corp.
B8 Braesburn Alloy Steel	E10 Enamel Prod. & Plating	M6 Mercer Pipe Div., Saw-	R6 Rome Strip Steel Co.	U6 U. S. Pipe & Foundry
B9 Brainerd Steel Div.,	F2 Firth Sterling Inc.	Hill Tubular Products	R8 Reliance Div., Eaton Mfg.	U7 Ulbrich Stainless Steels
Sharon Steel Corp.	F3 Fitzsimmons Steel Co.	M8 Mid-States Steel & Wire	R9 Rome Mfg. Co.	U8 U. S. Steel Supply Div.,
B10 E. & G. Brooke, Wick-	F4 Follansbee Steel Corp.	M14 McInnes Steel Co.	R10 Rodney Metals Inc.	U. S. Steel Corp.
wire Spencer Steel Div.,	F5 Franklin Steel Div.,	M16 Md. Fine & Specialty	S1 Seneca Wire & Mfg. Co.	U11 Union Carbide Metals Co.
Colo. Fuel & Iron	Borg-Warner Corp.	Wire Co. Inc.	S3 Sharon Steel Corp.	U13 Union Steel Corp.
B11 Buffalo Bolt Co., Div.,	F6 Fretz-Moon Tube Co.	M17 Metal Forming Corp.	S4 Sharon Tube Co.	V2 Vanadium-Alloys Steel
Buffalo Eclipse Corp.	F7 Ft. Howard Steel & Wire	M18 Milton Steel Div.,	S5 Sheffield Div.,	V3 Vulcan-Kidd Steel
B12 Buffalo Steel Corp.	F8 Ft. Wayne Metals Inc.	Merritt-Chapman & Scott	Armco Steel Corp.	Div., H. K. Porter Co.
B14 A. M. Byers Co.		M21 Mallory-Sharon	S6 Shenango Furnace Co.	W1 Wallace Barnes Steel
B15 J. Bishop & Co.	H1 Hanna Furnace Corp.	Metals Corp.	S7 Simmons Co.	Div., Associated Spring Corp.
C1 Calstrip Steel Corp.	H2 Helical Tube Co.	M22 Mill Strip Products Co.	S8 Simonds Saw & Steel Co.	W2 Wallingford Steel Co.
C2 Calumet Steel Div.,	I-1 Igoe Bros. Inc.	N1 National-Standard Co.	S12 Spencer Wire Corp.	W3 Washburn Wire Co.
Borg-Warner Corp.	I-2 Inland Steel Co.	N2 National Supply Co.	S13 Standard Forgings Corp.	W4 Washington Steel Corp.
C4 Carpenter Steel Co.	I-3 Interlake Iron Corp.	N3 National Tube Div.,	S14 Standard Tube Co.	W6 Weirton Steel Co.
C9 Colonial Steel Co.	I-4 Ingersoll Steel Div.,	U. S. Steel Corp.	S15 Stanley Works	W8 Western Automatic
C10 Colorado Fuel & Iron	Borg-Warner Corp.	N5 Nelsen Steel & Wire Co.	S17 Superior Drawn Steel Co.	Machine Screw Co.
C11 Columbia-Geneva Steel	I-5 Indiana Steel & Wire Co.	N6 New England High	S18 Superior Steel Div.,	W9 Wheatland Tube Co.
Div., U. S. Steel Corp.		Carbon Wire Co.	Copperweld Steel Co.	W10 Wheeling Steel Corp.
C12 Columbia Steel & Shaft.		N8 Newman-Crosby Steel	S19 Sweet's Steel Co.	W12 Wickwire Spencer Steel
C13 Columbia Tool Steel Co.		N14 Northwest. Steel Rolling	S20 Southern States Steel	Div., Colo. Fuel & Iron
C14 Compressed Steel Shaft.		Mills Inc.	S23 Superior Tube Co.	W13 Wilson Steel & Wire Co.
C15 Connors Steel Div.,		N15 Northwestern S. & W. Co.	S25 Stainless Welded Prod.	W14 Wisconsin Steel Div.,
H. K. Porter Co. Inc.		N20 Neville Ferro Alloy Co.	S26 Specialty Wire Co. Inc.	International Harvester
C16 Continental Steel Corp.	I-6 Irvins Steel Tube Works	O4 Oregon Steel Mills	S30 Sierra Drawn Steel Corp.	W15 Woodward Iron Co.
C17 Copperweld Steel Co.	I-7 Indiana Steel & Wire Co.	P1 Pacific States Steel Corp.	S40 Seneca Steel Service	W18 Wyckoff Steel Co.
C18 Crucible Steel Co.		P2 Pacific Tube Co.	S41 Stainless & Strip Div.,	Y1 Youngstown Sheet & Tube
C19 Cumberland Steel Co.	J1 Jackson Iron & Steel Co.	P4 Phoenix Steel Corp.	J&L Steel Corp.	
C20 Cuyahoga Steel & Wire	J3 Jessop Steel Co.		S42 Southern Elec. Steel Co.	
	J4 Johnson Steel & Wire Co.			

STRIP

STRIP, Cold-Rolled Alloy

Boston	T6	15.90	Weirton, W. Va.	W6	10.80
Carnegie, Pa.	S18	15.55	Youngstown	Y1	10.80
Cleveland	A7	15.55			
Dover, O.	G6	15.55	STRIP, Cold-Rolled Ingot Iron		
Farrell, Pa.	S3	15.55	Warren, O.	R2	8.175
Franklin Park, Ill.	T6	15.55	STRIP, C. R. Electrogalvanized		
Alton, Ill.	L1	15.55	Cleveland	A7	7.425*
Ashland, Ky.	(8) A10	15.10	Dover O.	G6	7.425*
Atlanta, A11		15.10	Evanston, Ill.	M22	7.525*
Bessemer, Ala.	T2	5.10	McKeesport, Pa.	E10	7.50*
Birmingham, C15		5.10	Riverville, Ill.	A1	7.525*
Buffalo (27)	R2	5.10	Pawtucket, R.I.	N8	15.90
Conshohocken, Pa.	A3	5.15	Riverville, Ill.	A1	15.85
Detroit	M1	5.10	Worcester, Mass.	A7	7.975
George, Mich.	G5	5.10	Youngstown	S41	7.425*
Fairfield, Ala.	T2	5.10	Sharon, Pa.	S3	15.55
Fontana, Calif.	K1	5.10	Worcester, Mass.	A7	15.85
Gary, Ind.	U5	5.10	Youngstown	S41, Y1	7.425
Ind. Harbor, Ind.	I-2, Y1	5.10			
Johnstown, Pa.	(25) B2	5.10			
Lackawanna, N.Y.	(25)	5.10			
Los Angeles (25)	B3	5.85			
Los Angeles C1		8.60			
Minnequa, Colo.	C10	8.20			
Riverville, Ill.	A1	5.10			
San Francisco S7		6.60			
Seattle (25) B3		6.10			
Seattle N14		6.60			
Sharon, Pa.	S3	5.10			
Chicago W14		5.10			
San Francisco (25)	B3	5.85			
SparsowsPoint, Md.	B2	5.2			
Torrance, Calif.	C11	5.85			
Warren, O.	R2	5.10			
Weirton, W. Va.	W6	5.10			
Youngstown U5		5.10			

*Plus galvanizing extras.

STRIP, Cold-Rolled High-Strength, Low-Alloy

Cleveland	A7	10.80	Farrell, Pa.	S3	7.50
Dearborn, Mich.	S3	10.80	Sharon, Pa.	S3	7.50
Dover, O.	G6	10.80			
Farrell, Pa.	S3	10.80	TIGHT COOPERAGE HOOP		
Ind. Harbor, Ind.	Y1	10.80	Atlanta	A11	5.65
Riverville, Ill.	A1	10.80	Farrell, Pa.	S3	5.525
Warren, O.	R2	10.80	Riverville, Ill.	A1	5.675
Weirton, W. Va.	W6	5.10	Sharon, Pa.	S3	5.525
Youngstown	U5	5.10	Youngstown	U5	5.525

STRIP, Cold-Finished Spring Steel (Annealed)

Baltimore	T6	0.26	0.41	0.61	0.81	1.06
Boston	T6	0.40	0.60	0.80	1.05C	1.35C
Bristol, Conn.	W1	9.50	10.70	12.90	15.90	18.85
Carnegie, Pa.	S18	10.05	10.40	12.60	15.60	19.30
Cleveland	A7	8.95	10.40	12.60	15.60	18.55
Dearborn, Mich.	S3	8.95	10.40	12.60	15.60	18.55
Detroit	D2	9.05	10.50	12.70	15.70	
Dover, O.	G6	8.95	10.40	12.60	15.60	18.55
Evanston, Ill.	M22	8.95	10.40	12.60	15.60	
Farrell, Pa.	S3	8.95	10.40	12.60	15.60	18.55
Fostoria, O.	S1	10.05	10.40	12.60	15.60	
Franklin Park, Ill.	T6	9.05	10.40	12.60	15.60	18.55
Harrison, N.J.	C18	12.90	16.10	19.30		
Ind. Harbor, Ind.	Y1	9.10	10.55	12.60	15.60	18.55
Kansas City, Mo.	S5	11.15	12.60	14.80	17.80	
Los Angeles B3		11.15	12.60	14.80	17.80	
Lowellville, O.	S3	9.40	10.70	12.90	15.90	18.85
New Haven, Conn.	D2	9.40	10.70	12.90	15.90	
New Kensington, Pa.	A6	9.85	10.40	12.60	15.60	
New York W3		10.70	12.90	16.10	19.30	
Pawtucket, R.I.	N8	9.50	10.70	12.90	15.90	18.85
Riverville, Ill.	A1	9.05	10.40	12.60	15.60	18.55
Rome, N.Y. (32)	R6	8.95	10.40	12.60	15.60	18.55
Sharon, Pa.	S3	8.95	10.40	12.60	15.60	18.55
Trenton, N.J.	R5	10.70	12.90	15.90	18.85	
Wallingford, Conn.	W2	9.40	10.70	12.90	15.90	18.75
Warren, O.	T5	8.95	10.40	12.60	15.60	18.55
Worcester, Mass.	A7, T6	9.50	10.70	12.90	15.90	18.85
Youngstown	S41	8.95	10.40	12.60	15.60	18.55

Spring Steel (Tempered)

Bristol, Conn.	W1	Up to	0.81	1.06
Buffalo	W12	0.80	0.81	1.06
Fostoria, O.	S1	18.85	22.95	27.80
Franklin Park, Ill.	T6	19.05	22.15	
Harrison, N.J.	C18	19.20	23.30	28.15
New York W3		18.85	22.95	27.80
Palmer, Mass.	W12	18.85	22.95	27.80
Trenton, N.J.	R5	18.85	22.95	27.80
Wallingford, Conn.	W2	9.05	10.00	10.40
Warren, O.	T5	8.95	10.40	12.60
Worcester, Mass.	A7, T6	9.50	10.70	12.90
Youngstown	S41	8.95	10.40	12.60

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)

Aliquippa, Pa.	J5	0.25 lb	0.50 lb	0.75 lb
Alton, Ill.	L1	\$9.10	\$9.35	\$9.75
Baltimore	T6	9.20	9.45	9.85
Bethel, Pa.	U5	9.20	9.45	9.85
Fairless, Pa.	U5	9.75	10.00	10.40
Gary, Ind.	U5	9.10	9.35	9.75
Granite City, Ill.	G4	9.20	9.45	9.60
Ind. Harbor, Ind.	I-2, Y1	9.10	9.35	9.75
Irvin, Pa.	U5	9.10	9.35	9.75
Jamesburg, N.J.	U5	9.10	9.35	9.75
Johnstown, Pa.	B2	9.10	9.35	9.75
Kansas City, Mo.	U3	9.20	9.45	9.85
Kokomo, Ind.	C16	9.10	9.35	9.75
Lowellville, O.	S3	9.10	9.35	9.75
Minnequa, Colo.	C10	9.10	9.35	9.75
Monessen, Pa.	P7	9.10	9.35	9.75
Monessen, Pa.	P16	9.10	9.35	9.75
Monessen, Pa.	P18	9.10	9.35	9.75
Monessen, Pa.	P21	9.10	9.35	9.75
Monessen, Pa.	P25	9.10	9.35	9.75
Monessen, Pa.	P30	9.10	9.35	9.75
Monessen, Pa.	P35	9.10	9.35	9.75
Monessen, Pa.	P40	9.10	9.35	9.75
Monessen, Pa.	P45	9.10	9.35	9.75
Monessen, Pa.	P50	9.10	9.35	9.75
Monessen, Pa.	P55	9.10	9.35	9.75
Monessen, Pa.	P60	9.10	9.35	9.75
Monessen, Pa.	P65	9.10	9.35	9.75
Monessen, Pa.	P70	9.10	9.35	9.75
Monessen, Pa.	P75	9.10	9.35	9.75
Monessen, Pa.	P80	9.10	9.35	9.75
Monessen, Pa.	P85	9.10	9.35	9.75
Monessen, Pa.	P90	9.10	9.35	9.75
Monessen, Pa.	P95	9.10	9.35	9.75
Monessen, Pa.	P100	9.10	9.35	9.75
Monessen, Pa.	P105	9.10	9.35	9.75
Monessen, Pa.	P110	9.10	9.35	9.75
Monessen, Pa.	P115	9.10	9.35	9.75
Monessen, Pa.	P120	9.10	9.35	9.75
Monessen, Pa.	P125	9.10	9.35	9.75
Monessen, Pa.	P130	9.10	9.35	9.75
Monessen, Pa.	P135	9.10	9.35	9.75
Monessen, Pa.	P140	9.10	9.35	9.75
Monessen, Pa.	P145	9.10	9.35	9.75
Monessen, Pa.	P150	9.10	9.35	9.75
Monessen, Pa.	P155	9.10	9.35	9.75
Monessen, Pa.	P160	9.10	9.35	9.75
Monessen, Pa.	P165	9.10	9.35	9.75
Monessen, Pa.	P170	9.10	9.35	9.75
Monessen, Pa.	P175	9.10	9.35	9.75
Monessen, Pa.	P180	9.10	9.35	9.75
Monessen, Pa.	P185	9.10	9.35	9.75
Monessen, Pa.	P190	9.10	9.35	9.75
Monessen, Pa.	P195	9.10	9.35	9.75
Monessen, Pa.	P200	9.10	9.35	9.75
Monessen, Pa.	P205	9.10	9.35	9.75
Monessen, Pa.	P210	9.10	9.35	9.75
Monessen, Pa.	P215	9.10	9.35	9.75
Monessen, Pa.	P220	9.10	9.35	9.75
Monessen, Pa.	P225	9.10	9.35	9.75
Monessen, Pa.	P230	9.10	9.35	9.75
Monessen, Pa.	P235	9.10	9.35	9.75
Monessen, Pa.	P240	9.10	9.35	9.75
Monessen, Pa.	P245	9.10	9.35	9.75
Monessen, Pa.	P250	9.10	9.35	9.75
Monessen, Pa.	P255	9.10	9.35	9.75
Monessen, Pa.	P260	9.10	9.35	9.75
Monessen, Pa.	P265	9.10	9.35	9.75
Monessen, Pa.	P270	9.10	9.35	9.75
Monessen, Pa.	P275	9.10	9.35	9.75
Monessen, Pa.	P280	9.10	9.35	9.75
Monessen, Pa.	P285	9.10	9.35	9.75
Monessen, Pa.	P290	9.10	9.35	9.75
Monessen, Pa.	P295	9.10	9.35	9.75
Monessen, Pa.	P300	9.10	9.35	9.75
Monessen, Pa.	P305	9.10	9.35	9.75
Monessen, Pa.	P310	9.10	9.35	9.75
Monessen, Pa.	P315	9.10	9.35	9.75
Monessen, Pa.	P320	9.10	9.35	9.75
Monessen, Pa.	P325	9.10	9.35	9.75
Monessen, Pa.	P330	9.10	9.35	9.75
Monessen, Pa.	P335	9.10	9.35	9.75
Monessen, Pa.	P340	9.10	9.35	9.75
Monessen, Pa.	P345	9.10	9.35	9.75
Monessen, Pa.	P350	9.10	9.35	9.75
Monessen, Pa.	P355	9.10	9.35	9.75
Monessen, Pa.	P360	9.10	9.35	9.75
Monessen, Pa.	P365	9.10	9.35	9.75
Monessen, Pa.	P370	9.10	9.35	9.75
Monessen, Pa.	P375	9.10	9.35	9.75
Monessen, Pa.	P380	9.10	9.35	9.75
Monessen, Pa.	P385	9.10	9.35	9.75
Monessen, Pa.	P390	9.10	9.35	9.75
Monessen, Pa.	P395	9.10	9.35	9.75
Monessen, Pa.	P400	9.10	9.35	9.75
Monessen, Pa.	P405	9.10	9.35	9.75
Monessen, Pa.	P410	9.10	9.35	9.75
Monessen, Pa.	P415	9.10	9.35	9.75
Monessen, Pa.	P420	9.10	9.35	9.75
Monessen, Pa.	P425	9.10	9.35	9.75
Monessen, Pa.	P430	9.10	9.35	9.75
Monessen, Pa.	P435	9.10	9.35	9.75
Monessen, Pa.	P440	9.10	9.35	9.75
Monessen, Pa.	P445	9.10	9.35	9.75
Monessen, Pa.	P450	9.10	9.35	9.75
Monessen, Pa.	P455	9.10	9.35	9.75
Monessen, Pa.	P460	9.10	9.35	9.75
Monessen, Pa.	P465	9.10	9.35	9.75
Monessen, Pa.	P470	9.10	9.35	9.75
Monessen, Pa.	P475	9.10	9.35	9.75
Monessen, Pa.	P480	9.10	9.35	9.75
Monessen, Pa.	P485	9.10	9.35	9.75
Monessen, Pa.	P490	9.10	9.35	9.75
Monessen, Pa.	P495	9.10	9.35	9.75
Monessen, Pa.	P500	9.10	9.35	9.75
Monessen, Pa.	P505	9.10	9.35	9.75
Monessen, Pa.	P510	9.10	9.35	9.75
Monessen, Pa.	P515	9.10	9.35	9.75</td

WIRE, Cold-Rolled Flat

Anderson, Ind.	G6	12.35	Donora, Pa.	A7	.....	9.54
Baltimore	T6	12.65	Duluth	A7	.....	9.54
Boston	T6	12.65	Fairfield, Ala.	T2	.....	9.54
Buffalo	W12	12.35	Houston	S5	.....	10.85
Chicago	W13	12.45	Jacksonville, Fla.	MS	.....	9.64
Cleveland	A7	12.35	Johnstown, Pa.	B2	.....	10.60
Crawfordsville, Ind.	MS	12.35	Joliet, Ill.	A7	.....	9.54
Dover, O.	G6	12.35	Kansas City, Mo.	S5	.....	10.55
Farrell, Pa.	S3	12.35	Kokomo, Ind.	C16	.....	9.64
Fostoria, O.	S1	12.35	Los Angeles	B3	.....	11.40
Franklin Park, Ill.	T6	12.45	Minnequa, Colo.	C10	.....	10.85
Kokomo, Ind.	C16	12.35	Pittsburg, Calif.	C11	.....	10.26
Massillon, O. RS	.....	12.35	S. Chicago, Ill.	R2	.....	9.54
Milwaukee	C23	12.55	S. San Francisco	C10	.....	11.40
Monesen, Pa.	P7, P16	12.35	Sparrows Pt. Md.	B2	.....	10.70
Palmer, Mass.	W12	12.65	Sterling, Ill. (37)	N15	.....	9.54
Pawtucket, R. I.	NS	11.95	Coil No. 6500 Interim			
Philadelphia	P24	12.65	Alabama City, Ala.	R2	.....	\$9.59
Riverdale, Ill.	A1	12.45	Atlanta	A11	.....	10.75
Rome, N.Y.	R6	12.35	Bartonville, Ill.	K4	.....	9.69
Sharon, Pa.	S3	12.35	Buffalo	W12	.....	10.65
Trenton, N. J.	R5	12.65	Chicago	W13	.....	9.59
Warren, O.	B9	12.35	Donora, Pa.	A7	.....	9.59
Worcester, Mass.	A7, T6	12.65	Fairfield, Ala.	T2	.....	9.59

NAILS, Stock

Alabama City, Ala.	R2	.....	173
Aliquippa, Pa.	J5	.....	173
Atlanta	A11	.....	175
Bartonville, Ill.	K4	.....	175
Chicago	W13	.....	173
Cleveland	A9	.....	173
Crawfordsville, Ind.	MS	.....	175
Donora, Pa.	A7	.....	173
Duluth	A7	.....	173
Fairfield, Ala.	T2	.....	173
Houston	S5	.....	178
Jacksonville, Fla.	M8	.....	175
Johnstown, Pa.	B2	.....	173
Joliet, Ill.	A7	.....	173
Kansas City, Mo.	S5	.....	178
Kokomo, Ind.	C16	.....	175
Monessen, Pa.	P7	.....	173
Pittsburg, Calif.	C11	.....	192
Rankin, Pa.	A7	.....	173
S. Chicago, Ill.	R2	.....	173
Sparrows Pt. Md.	B2	.....	175
Sterling, Ill. (7)	N15	.....	175
Worcester, Mass.	A7	.....	179

(To Wholesalers, per cwt)

Galveston, Tex. D7 \$10.30

**NAILS, Cut (100 lb keg)
To Distributors (33)**

Wheeling, W. Va.	W10	.....	\$10.10
POLISHED STAPLES	Col.		

Alabama City, Ala.	R2	.....	175
Aliquippa, Pa.	J5	.....	173
Atlanta	A11	.....	177
Bartonville, Ill.	K4	.....	175
Crawfordsville, Ind.	MS	.....	177
Donora, Pa.	A7	.....	173
Duluth	A7	.....	173
Fairfield, Ala.	T2	.....	173
Houston	S5	.....	180
Jacksonville, Fla.	M8	.....	177
Johnstown, Pa.	B2	.....	175
Joliet, Ill.	A7	.....	173
Kansas City, Mo.	S5	.....	180
Kokomo, Ind.	C16	.....	177
Minnequa, Colo.	C10	.....	180
Pittsburg, Calif.	C11	.....	194
Rankin, Pa.	A7	.....	173
S. Chicago, Ill.	R2	.....	175
Sparrows Pt. Md.	B2	.....	177
Sterling, Ill. (7)	N15	.....	175
Worcester, Mass.	A7	181

**PIPE WIRE, Automatic Baler
(1 1/2 Ga.) (per 9 lb Net Box)**

Coil No.	3150		
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Alabama City, Ala.	R2	\$9.24
Atlanta	A11	10.36
Bartonville, Ill.	K4	9.34
Buffalo	W12	10.26
Chicago	W13	.....	9.24
Crawfordsville, Ind.	MS	.....	9.34
Donora, Pa.	A7	.....	9.24
Duluth	A7	.....	9.24
Fairfield, Ala.	T2	.....	9.24
Houston	S5	.....	10.51
Jacksonville, Fla.	M8	.....	9.34
Johnstown, Pa.	B2	.....	10.26
Joliet, Ill.	A7	.....	9.24
Kansas City, Mo.	S5	.....	10.51
Kokomo, Ind.	C16	.....	9.34
Minnequa, Colo.	C10	.....	11.05
Pittsburg, Calif.	C11	.....	9.94
S. Chicago, Ill.	R2	.....	9.24
Sparrows Pt. Md.	B2	.....	10.36
Sterling, Ill. (37)	N15	.....	9.24

Coil No. 6500 Stand.

Alabama City, Ala.	R2	.....	\$9.54
Atlanta	A11	.....	10.70
Bartonville, Ill.	K4	.....	9.64
Buffalo	W12	.....	10.60
Chicago	W13	.....	9.54
Crawfordsville, Ind.	MS	.....	9.64

Donora, Pa.	A7	.....	9.54
Duluth	A7	.....	9.54
Fairfield, Ala.	T2	.....	9.54
Houston	S5	.....	10.85
Jacksonville, Fla.	MS	.....	9.64
Johnstown, Pa.	B2	.....	10.60
Joliet, Ill.	A7	.....	9.54
Kansas City, Mo.	S5	.....	10.55
Kokomo, Ind.	C16	.....	9.64
Minnequa, Colo.	C10	.....	10.55
Pittsburg, Calif.	C11	.....	10.26
Rankin, Pa.	A7	.....	9.54
S. Chicago	W13	.....	10.45
Sparrows Pt. Md.	B2	.....	10.70
Sterling, Ill. (37)	N15	.....	9.54

Coil No. 6500 Interim

Alabama City, Ala.	R2	.....	\$9.59
Atlanta	A11	.....	10.75
Bartonville, Ill.	K4	.....	10.75
Chicago	W13	.....	10.95
Cleveland	A9	.....	10.95
Crawfordsville, Ind.	MS	.....	10.95
Donora, Pa.	A7	.....	9.59
Duluth	A7	.....	9.59
Fairfield, Ala.	T2	.....	9.59
Houston	S5	.....	10.90
Jacksonville, Fla.	B3	.....	11.45
Johnstown, Pa.	B2	.....	10.65
Joliet, Ill.	A7	.....	9.59
Kansas City, Mo.	S5	.....	10.90
Kokomo, Ind.	C16	.....	9.69
Minnequa, Colo.	C10	.....	10.90
Pittsburg, Calif.	C11	.....	10.31
Rankin, Pa.	P11	.....	11.45
S. San Francisco	C10	.....	10.75
Sparrows Pt. Md.	B2	.....	10.75
Sterling, Ill. (37)	N15	.....	9.59

Ala. City, Ala.	R2	17.85	19.40	**
Ali'ppa, Pa.	J5	17.85	19.65	
Bartonville	K4	17.95	19.80	
Cleveland	A7	17.85	19.80	
Crawf'dvile	MS	17.95	19.80	**
Fosteria, O.	S1	18.35	19.90	
Houston	S5	18.10	19.65	**
Jacksonville	M3	17.95	19.80	**
Kan. City, Mo.	S5	18.10	19.80	
Kokomo	C16	17.25	18.30	
Minnequa	C10	18.10	19.65	**
Pitts'r, Mass.	W12	18.15	19.70	
Pitts'g Cal.	C11	18.20	19.75	
Rankin, Pa.	B2	18.10	19.75	
S. Chicago	R2	18.10	19.75	
Sparrows Pt. Md.	B2	18.10	19.75	
Sterling, Ill. (37)	N15	18.10	19.75	

WIRE (16 gage)	An'ld Galv.	(Full container)	Longer than 6 in.
Ala. City, Ala.	R2	17.85	19.40
Ali'ppa, Pa.	J5	17.85	19.65
Bartonville	K4	17.95	19.80
Cleveland	A7	17.85	19.80
Crawf'dvile	MS	17.95	19.80
Fosteria, O.	S1	18.35	19.90
Houston	S5	18.10	19.65
Jacksonville	M3	17.95	19.80
Kan. City, Mo.	S5	18.10	19.80
Kokomo	C16	17.25	18.30
Minnequa	C10	18.10	19.65
Pitts'r, Mass.	W12	18.15	19.70
Pitts'g Cal.	C11	18.20	19.75
Rankin, Pa.	B2	18.10	19.75
S. Chicago	R2	18.10	19.75
Sparrows Pt. Md.	B2	18.10	19.75
Sterling, Ill. (37)	N15	18.10	19.75

WIRE (16 gage)	Stone	Stone	Hex Nuts, Reg. & Heavy
Ala. City, Ala.	R2	17.85	19.40
Ali'ppa, Pa.	J5	17.85	19.65
Bartonville	K4	17.95	19.80
Cleveland	A7	17.85	19.80
Crawf'dvile	MS	17.95	19.80
Fosteria, O.	S1	18.35	19.90
Houston	S5	18.10	19.65
Jacksonville	M3	17.95	19.80
Kan. City, Mo.	S5	18.10	19.80
Kokomo	C16	17.25	18.30
Minnequa	C10	18.10	19.65
Pitts'r, Mass.	W12	18.15	19.70
Pitts'g Cal.	C11	18.20	19.75
Rankin, Pa.	B2	18.10	19.75
S. Chicago	R2	18.10	19.75
Sparrows Pt. Md.	B2	18.10	19.75
Sterling, Ill. (37)	N15	18.10	19.75

WIRE (16 gage)	Stone	Stone	Hex Nuts, Reg. & Heavy
Ala. City, Ala.	R2	17.85	19.40
Ali'ppa, Pa.	J5	17.85	19.65
Bartonville	K4	17.95	19.80
Cleveland	A7	17.85	19.80
Crawf'dvile	MS	17.95	19.80
Fosteria, O.	S1	18.35	19.90
Houston	S5	18.10	19.65
Jacksonville	M3	17.95	19.80
Kan. City, Mo.	S5	18.10	19.80
Kokomo	C16	17.25	18.30
Minnequa	C10	18.10	19.65
Pitts'r, Mass.	W12	18.15	19.70
Pitts'g Cal.	C11	18.20	19.75
Rankin, Pa.	B2	18.10	19.75
S. Chicago	R2	18.10	19.75
Sparrows Pt. Md.	B2	18.10	19.75
Sterling, Ill. (37)	N15	18.10	19.75

WIRE (16 gage)	Stone	Stone	Hex Nuts, Reg. &
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SEAMLESS STANDARD PIPE, Threaded and Coupled

Size—Inches	2	2½	3	3½	4	5	6
List Per Ft	37c	58.5c	76.5c	92c	\$1.09	\$1.48	\$1.92
Pounds Per Ft	3.68	5.82	7.62	9.20	10.89	14.81	19.18
Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	+12.25 +27.25	+5.75 +22.5	+3.25 +20	+1.75 +18.5	+1.75 +18.5	+2	+18.75
Ambridge, Pa. N2	+12.25	+5.75	+3.25	+1.75	+1.75	+2	...
Lorain, O. N3	+12.25 +27.25	+5.75 +22.5	+3.25 +20	+1.75 +18.5	+1.75 +18.5	+2	+18.75
Youngstown Y1	+12.25 +27.25	+5.75 +22.5	+3.25 +20	+1.75 +18.5	+1.75 +18.5	+2	+18.75

ELECTRIC STANDARD PIPE, Threaded and Coupled

Youngstown R2	+12.25 +27.25	+5.75 +22.5	+3.25 +20	+1.75 +18.5	+1.75 +18.5	+2	+18.75	0.5 +16.25
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BUTTWELD STANDARD PIPE, Threaded and Coupled

Size—Inches	1/8	1/4	3/8	1/2	5/8	3/4	1	1 1/4	
List Per Ft	5.5c	6c	6c	8.5c	11.5c	11.5c	17c	23c	
Pounds Per Ft	0.24	0.42	0.57	0.85	1.13	1.13	1.68	2.28	
Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	...	...	...	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...	...
Alton, Ill. L1	...	...	...	0.25 +15	3.25 +11	6.75 +6.5	9.25 +5.75	...	...
Benwood, W. Va. W10	1.5 +25	+10.5	+34	+21 +42.5	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...
Butler, Pa. F6	4.5 +22	+8.5	+32	+19.5 +41	...	...	...	...	...
Etna, Pa. N2	...	...	...	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...	...
Fairless, Pa. N3	...	...	...	0.25 +15	3.25 +11	6.75 +6.5	9.25 +5.75	...	...
Fontana, Calif. K1	...	...	...	+10.75 +26	+7.75 +22	+4.25 +17.5	+1.75 +16.75	...	...
Indiana Harbor, Ind. Y1	...	...	...	1.25 +14	4.25 +10	7.75 +5.5	10.25 +6.25	...	...
Lorain, O. N3	...	...	...	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...	...
Sharon, Pa. S4	4.5 +22	+8.5	+32	+19.5 +41	...	...	...	...	...
Sharon, Pa. M6	...	...	...	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...	...
Sparrows Pt., Md. B2	2.5 +24	+10.5	+34	+21.5 +43	0.25 +15	3.25 +11	6.75 +6.5	9.25 +5.75	...
Wheatland, Pa. W9	4.5 +22	+8.5	+32	+19.5 +41	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...
Youngstown R2, Y1	...	...	...	2.25 +13	5.25 +9	8.75 +4.5	11.25 +3.75	...	...

Size—Inches	1 1/2	2	2 1/2	3	3 1/2	4		
List Per Ft	27.5c	37c	58.5c	76.5c	92c	\$1.09		
Pounds Per Ft	2.72	3.68	5.82	7.62	9.20	10.89		
Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	
Aliquippa, Pa. J5	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	3.25 +13.5	3.25 +13.5	...	...
Alton, Ill. L1	9.75 +4.75	10.25 +4.25	11.75 +4.5	11.75 +4.5	1.25 +15.5	1.25 +15.5	...	...
Benwood, W. Va. W10	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	3.25 +13.5	3.25 +13.5	...	...
Etna, Pa. N2	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	3.25 +13.5	3.25 +13.5	...	...
Fairless, Pa. N3	9.75 +4.75	10.25 +4.25	11.75 +4.5	11.75 +4.5	1.25 +15.5	1.25 +15.5	...	...
Fontana, Calif. K1	+1.25 +15.75	+0.75 +15.25	0.75 +15.5	0.75 +15.5	+9.75 +26.5	+9.75 +26.5	...	...
Indiana Harbor, Ind. Y1	10.75 +3.75	11.25 +3.25	12.75 +3.5	12.75 +3.5	2.25 +14.5	2.25 +14.5	...	...
Lorain, O. N3	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	...	...	...	...
Sharon, Pa. M6	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	...	...	...	...
Sparrows Pt., Md. B2	9.75 +4.75	10.25 +4.25	11.75 +4.5	11.75 +4.5	1.25 +15.5	1.25 +15.5	...	...
Wheatland, Pa. W9	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	3.25 +13.5	3.25 +13.5	...	...
Youngstown R2, Y1	11.75 +2.75	12.25 +2.25	13.75 +2.5	13.75 +2.5	3.25 +13.5	3.25 +13.5	...	...

*Galvanized pipe discounts based on price of zinc at 11.00c, East St. Louis.

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI Type	—Rerolling—	Forging	H.R. Slabs	H.R. Billets	Rods; C.F.	Bars; Strips; Structural	Wire	Plates	Sheets	Wire	C.R. Strip; Flat
201	22.75	25.00	...	36.00	...	43.50	39.25	48.50	45.00	...	302
202	24.75	28.25	37.75	39.00	42.25	44.50	40.00	49.25	49.25	304	304L
301	24.00	26.00	38.75	37.25	43.50	46.00	41.25	51.25	47.50	316	316L
302	26.25	29.50	39.50	40.50	44.25	46.75	42.25	52.00	52.00	316 Cb	316 Cb
302B	26.50	30.75	42.25	45.75	46.75	49.00	44.50	57.00	57.00	321	321
303	...	33.25	42.50	...	47.25	49.75	45.00	56.75	56.75	347	347
304	28.00	31.25	42.00	43.75	47.00	49.50	45.75	55.00	55.00	405	405
304L	...	49.75	51.50	54.75	57.25	53.50	62.75	62.75	62.75	410	410
305	29.50	34.75	44.00	47.50	47.00	49.50	46.25	58.75	58.75	430	430
308	32.00	36.25	49.00	50.25	54.75	57.75	55.25	63.00	63.00	Inconel	Inconel
309	41.25	47.50	60.00	64.50	66.25	69.50	66.00	80.50	80.50	Nickel	Nickel
310	51.50	59.50	81.00	84.25	89.75	94.50	87.75	96.75	96.75	Monel	Monel
314	...	...	80.50	...	89.75	94.50	87.75	...	104.25	...	...
316	41.25	47.50	64.50	68.50	71.25	75.75	71.75	80.75	80.75	...	...
316L	...	72.25	76.25	79.50	83.50	79.50	88.50	88.50	88.50	...	...
317	49.75	58.00	79.75	88.25	89.50	94.25	88.50	101.00	101.00	...	...
321	33.50	38.00	48.75	53.50	54.50	57.50	54.75	65.50	65.50	...	...
330	...	123.25	...	113.00	143.75	135.00	149.25	149.25	149.25	...	...
18-8	CbTa	38.50	48.25	57.75	63.50	63.75	67.25	64.75	79.25	...	...
403	...	...	29.25	...	33.25	35.00	30.00	40.25	40.25	...	...
405	...	20.25	26.50	30.75	36.00	34.75	36.50	32.50	46.75	46.75	...
410	...	17.50	19.50	29.25	31.00	33.25	35.00	30.00	40.25	40.25	...
416	...	...	29.75	...	33.75	35.50	31.25	48.25	48.25	...	...
420	...	31.50	35.50	41.75	40.75	42.75	40.25	62.00	62.00	...	...
430	...	17.75	19.75	29.75	32.00	33.75	35.50	31.00	40.75	40.75	...
430F	...	...	30.50	...	34.25	36.00	31.75	51.75	51.75	...	...
431	...	29.75	39.25	43.50	46.00	41.00	56.00	56.00	56.00	...	...
446	...	40.75	59.00	46.00	48.25	42.75	70.00	70.00	70.00	...	...

Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; Calstrip Steel Corp.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless & Strip Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company, Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steel Inc.; Union Steel Corp.; U. S. Steel Corp.; Universal Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel, subsidiary, Allegheny Ludlum Steel Corp.; Washington Steel Corp.; Seymour Mfg. Co.

Clad Steel

Grade	\$ per lb	Grade	\$ per lb
Reg. Carbon (W-1)	0.330	W-Cr Hot Work (H-12)	0.530
Spec. Carbon (W-1)	0.385	W Hot Wk. (H-21)	1.425-1.44
Oil Hardening (O-1)	0.505	V-Cr Hot Work (H-13)	0.550
V-Cr Hot Work (H-11)	0.505	Hi-Carbon-Cr (D-11)	0.955

Grade by Analysis (%)					AISI	\$ per lb
W	Cr	V	Co	Mo	Designation	\$ per lb
18	4	1	...	...	T-1	1.840
18	4	2	...	...	T-2	2.005
13.5	4	3	...	...	T-3	2.105
18.25	4.25	1	4.75	...	T-4	2.545
18	4	2	9	...	T-5	2.915
20.25	4.25	1.6	12.95	...	T-6	4.330
13.75	3.75	2	5	...	T-8	2.485
1.5	4	1	...	8.5	M-1	1.200
6.4	4.5	1.9	...	5	M-2	1.345
6	4	3	...	6	M-3	1.590

Tool steel producers include: A4, A8, B2, B8, C4, C9, C12, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate.

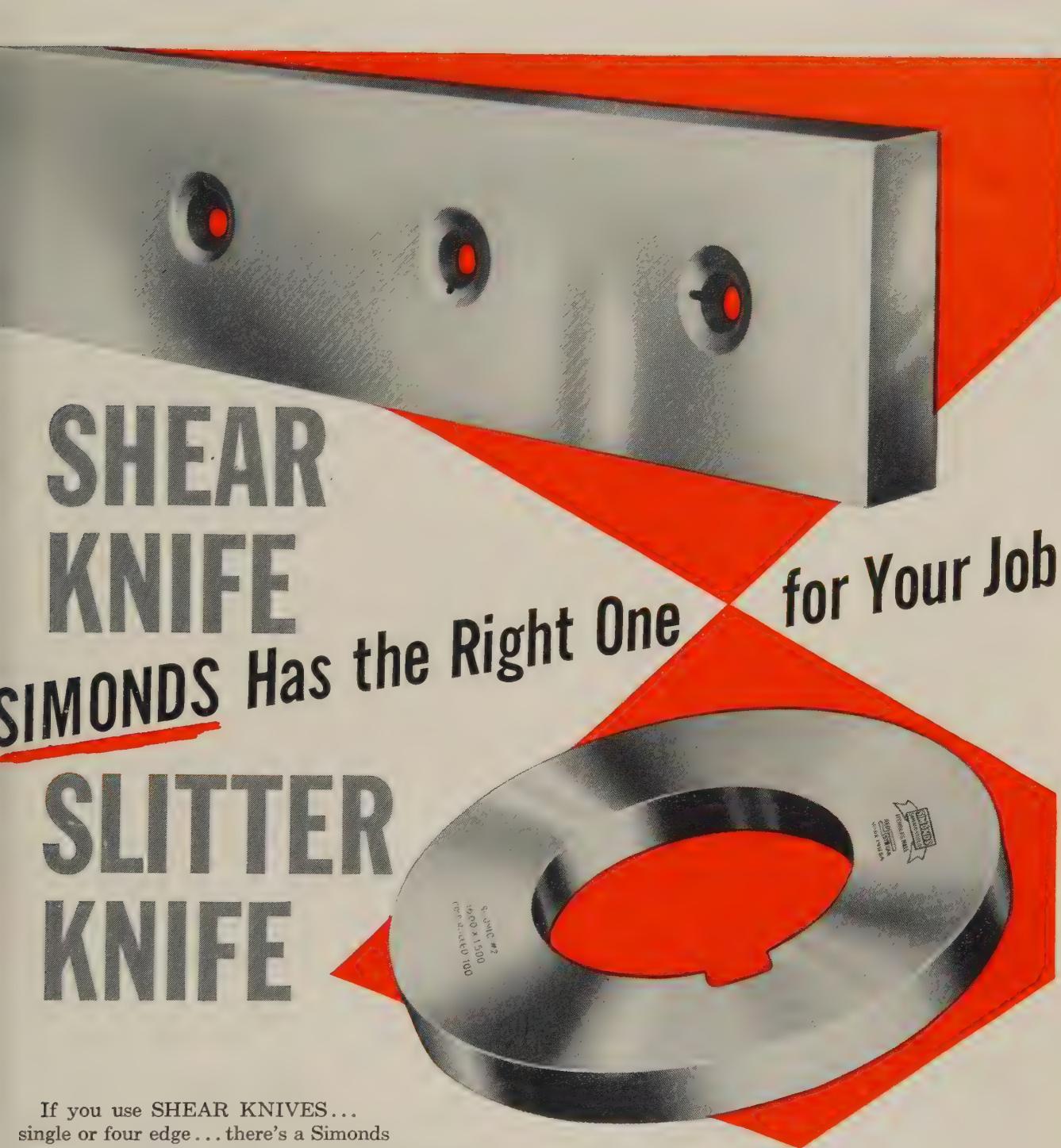
Steel Service Center Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Denver, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Birmingham, Chattanooga, Houston, Seattle, no charge.

	Sheets				Strip Hot-Rolled*	Bars			Standard Structural Shapes	Plates	
	Hot-Rolled	Cold-Rolled	Galv.	10 Ga.t		Stainless Type 302	H.R. Rounds	C.F. Rds.#	H.R. Alloy 4140†‡§	Carbon	Floor
Atlanta	8.58\$	9.86\$	10.13	....	8.91	9.39	13.24 #	....	9.40	9.29	11.21
Baltimore	8.55	9.25	9.99	....	9.05	9.45	11.85 #	15.48	9.55	9.00	10.50
Birmingham	8.18	9.45	10.46	....	8.51	8.99	....	....	9.00	8.89	10.90
Boston	10.07	11.12	11.92	53.50	12.17	10.19	13.30 #	15.64	10.64	10.27	11.95
Buffalo	8.40	9.60	10.85	55.98	8.75	9.15	11.45 #	15.40	9.25	9.20	10.75
Chattanooga	8.35	9.69	9.65	....	8.40	8.77	10.46	....	8.88	8.80	10.66
Chicago	8.25	9.45	10.90	53.00	8.51	8.99	9.15	15.06	9.00	8.89	10.20
Cincinnati	8.43	9.51	10.95	53.43	8.83	9.31	11.53 #	15.37	9.56	9.27	10.53
Cleveland	8.36	9.54	11.00	52.33	8.63	9.10	11.25 #	15.16	9.39	9.13	10.44
Dallas	8.80	9.30	....	....	8.85	8.80	....	....	8.75	9.15	10.40
Denver	9.40	11.84	12.94	....	9.43	9.80	11.19	....	9.84	9.76	11.08
Detroit	8.51	9.71	11.25	56.50	8.88	9.30	9.51	15.33	9.56	9.26	10.46
Erie, Pa.	8.35	9.45	9.95 ¹⁰	....	8.60	9.10	11.25	....	9.35	9.10	10.60
Houston	8.40	8.90	10.29	52.00	8.45	8.40	11.60	15.75	8.35	8.75	10.10
Jackson, Miss.	8.52	9.79	....	....	8.84	9.82	10.68	....	9.33	9.22	11.03
Los Angeles ...	8.70 ²	10.80 ²	12.20	57.60	9.15	9.10 ²	12.95 ²	16.35	9.00 ²	9.10 ²	11.30 ²
Memphis, Tenn.	8.59	9.80	....	....	8.84	9.32	11.25 #	....	9.33	9.22	10.86
Milwaukee	8.39	9.59	11.04	....	8.65	9.13	9.39	15.19	9.22	9.03	10.34
Moline, Ill.	8.55	9.80	....	....	8.84	8.95	9.15	....	8.99	8.91	...
New York	9.17	10.49	11.30	53.08	9.64	9.99	13.25 #	15.50	9.74	9.77	11.05
Norfolk, Va.	8.65	....	....	....	9.15	9.30	12.75	....	9.65	9.10	10.50
Philadelphia	8.20	9.25	10.61	52.71	9.25	9.40	11.95 #	15.48	9.10	9.15	10.40**
Pittsburgh	8.35	9.55	10.90	52.00	8.61	8.99	11.25 #	15.05	9.00	8.89	10.20
Richmond, Va.	8.65	....	10.79	....	9.15	9.55	....	....	9.65	9.10	10.60
St. Louis	8.63	9.83	11.28	....	8.89	9.37	9.78	15.43	9.48	9.27	10.58
St. Paul	8.79	10.04	11.49	....	8.84	9.21	9.86	....	9.38	9.30	10.49
San Francisco	9.65	11.10	11.40	55.10	9.75	10.15	13.60	16.25	9.85	10.00	12.35
Seattle	10.30	11.55	12.50	56.52	10.25	10.50	14.70	16.80 ³	10.20	10.10	12.50
South'ton, Conn.	9.07	10.33	10.71	....	9.48	9.74	....	....	9.57	9.57	10.91
Spokane	10.30	11.55	12.50	57.38	10.75	11.00	14.70	16.80	10.20	10.10	13.00
Washington ...	9.15	....	....	....	9.65	10.05	12.50	....	10.15	9.60	11.10

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; \$42 in. and under; **1/8 in. and heavier; ††as annealed; ††1/8 in. 4 in. wide, inclusive; # net price, 1 in. round C-1018.

lb except in Chicago, New York, Boston, Seattle, 10,000 lb and over except in Seattle, 2000 to 3999 lb; stainless sheets, 800 lb, except in Seattle, 30,000 lb and over; ²—30,000 lb; ³—1000 to 4999 lb; ⁵—1000 to 1999 lb; ¹⁰—2000 lb and over.



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Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

Refractories

Fire Clay Brick (per 1000 pieces*)

High-Heat Duty: Ashland, Grahn, Hayward, Hitchens, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwenville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., Canon City, Colo., \$140; Salina, Pa., \$145; Niles, Ohio, \$138; Cutler, Utah, \$175.

Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, \$185; Stevens Pottery, Ga., \$196; Cutler, Utah, \$248.

Silica Brick (per 1000 pieces*)

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Easley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., St. Louis, \$158; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., \$163; E. Chicago, Ind., Joliet, Rockdale, Ill., \$168; Canon City, Colo., \$173; Lehi, Utah, \$183; Los Angeles, \$185.

Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., \$158; Morrisville, Hays, Latrobe, Pa., \$163; E. Chicago, Ind., St. Louis, \$163; Canon City, Colo., \$183; Curtner, Calif., \$185.

Semisilica Brick (per 1000 pieces*)

Woodbridge, N. J., Canon City, Colo., \$140; Philadelphia, Clearfield, Pa., \$145.

Ladle Brick (per 1000 pieces*)

Dry Pressed: Easley, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Ironton, New Salisbury, Ohio, \$96.75; Clearfield, Pa., Portsmouth, Ohio, \$102.

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

Cents

Sponge Iron, domestic and foreign, 98% Fe:

Minimum trucklots, freight allowed east of Mississippi River:

- 100 mesh, 100 lb bags 11.25
- 100 mesh, 100 lb pails 9.10
- 40 mesh, 100 lb bags 8.10

Electrolytic Iron, Melting stock, 99.87% Fe, irregular fragments of $\frac{1}{8}$ in. x 1.3 in. 28.75

(In contract lots of 240 tons price is 22.75c)

Annealed, 99.5% Fe. 36.50

Unannealed (99 + % Fe) 36.00

Unannealed (99 + % Fe) (minus 325 mesh) 59.00

Powder Flake (minus 16, plus 100 mesh) 29.00

Carbonyl Iron: 98.1-98.9%, 3 to 20 microns, depending on grade, 93.00-290.00 in standard 200-lb containers; all minus 200 mesh.

Aluminum:

Atomized, 500-lb drum, freight allowed
Carlots 38.50
Ton lots 40.50

Antimony, 500-lb lots 42.00*

Brass, 5000-lb lots 34.50-51.00†

Bronze, 5000-lb lots 52.40-56.40†

Copper:

- Electrolytic 14.25*
- Reduced 14.25*
- 7.50*

Lead 24
Manganese, Electrolytic:

Minus 50 mesh 43.00

Nickel 80.60

Nickel-Silver, 5000-lb lots 53.00-57.30†

Phosphor-Copper, 5000-lb lots 64.80

Copper (atomized) 5000-lb lots 45.30

Solder 7.00*

Stainless Steel, 304 \$0.89

Stainless Steel, 316 \$1.07

Tin 14.00*

Zinc, 5000-lb lots 19.00-32.20†

Tungsten: Dollars

Carbon reduced, 98.8% min, minus 65 mesh nom.**

1000 lb 2.80

Less 1000 lb 2.95

Chromium, electrolytic

99.8% Cr, min

metallic basis 5.00

*Plus cost of metal, †Depending on composition, ‡Depending on mesh, \$Cutting and scrapping grade, **Depending on price of ore.

††Welding grade.

20 90 11.55

24 72, 84 11.95

24 96 12.10

30 84 12.00

35, 40 110 11.60

40 100 12.50

High-Alumina Brick (per 1000 pieces*)

50 Per Cent: St. Louis, Mexico, Vandalia, Mo., Danville, Ill., \$253; Philadelphia, \$265; Clearfield, Pa., \$230; Orviston, Snow Shoe, Pa., \$260. 60 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$310; Danville, Ill., \$313; Clearfield, Orviston, Snow Shoe, Pa., \$320; Philadelphia, \$325. 70 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$350; Danville, Ill., \$353; Clearfield, Orviston, Snow Shoe, Pa., \$360; Philadelphia, \$365.

Sleeves (per 1000)

Reeddale, Johnstown, Bridgeburg, St. Charles, Pa., St. Louis, \$188; Ottawa, Ill., \$205.

Nozzles (per 1000)

Reeddale, Johnstown, Bridgeburg, St. Charles, Pa., St. Louis, \$310.

Runners (per 1000)

Reeddale, Johnstown, Bridgeburg, St. Charles, Pa., \$234.

Dolomite (per net ton)

Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, \$16.75; Thornton, McCook, Ill., \$17; Dolly Siding, Bonne Terre, Mo., \$15.60.

Magnesite (per net ton)

Domestic, dead-burned, $\frac{1}{2}$ in. grains with fines: Chewelah, Wash., Luning, Nev., \$46; $\frac{1}{2}$ in. grains with fines: Baltimore, \$73.

*9 in \times 4 $\frac{1}{2}$ \times 2.50 sts.

Ores

Lake Superior Iron Ore

(Prices effective at start of the 1959 shipping season, subject to later revision, gross tons 51.50% iron natural, rail or vessel, lower lake ports.)

Mesabi bessemer \$11.6

Mesabi nonbessemer 11.4

Old Range bessemer 11.8

Old Range nonbessemer 11.7

Open-hearth lump 12.7

High phos 11.4

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates handling and unloading charges, and taxes thereon, which were in effect Jan. 1, 1959 and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore

Cents per unit, deld. E. Pa.

New Jersey, concentrates nom.

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 65% 21.0

Brazilian iron ore, 68.5% 22.6

Tungsten Ore

Net ton, unit

Foreign wolframite, good commercial quality \$12.50-13.00

Domestic, concentrates f.o.b. milling points 16.00-17.00

*Before duty. †Nominal.

Manganese Ore

Mn 46-48%, Indian 91.5c-96.5c, nom. per long ton unit, c.i.f. U. S. ports, duty for buyer's account.

Chrome Ore

Gross ton, f.o.b. cars New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., Tacoma, Wash.

Indian and Rhodesian

48% 3:1 \$42.00-44.00

48% 2.8:1 38.00-40.00

48% no ratio 29.00-31.00

South African Transvaal

44% no ratio 19.75-21.00

48% no ratio 29.00-31.00

Turkish

48% 3:1 51.00-55.00

Domestic

Rail nearest seller 39.00

18% 3:1 Molybdenum

Sulfide concentrate, per lb of Mo content mines, unpacked \$1.20

Antimony Ore

Per short ton unit of Sb content, c.i.f. seaboard 50-55% \$2.25-2.40

60-65% 2.50-3.10

Vanadium Ore

Cents per lb V₂O₅ 31.00

Domestic 31.00

†Nominal.

Metallurgical Coke

Price per net ton Beehive Ovens

Connellsville, Pa., furnace \$14.75-15.24

Connellsville, Pa., foundry 18.00-18.54

Oven Foundry Coke

Birmingham, ovens \$30.33

Cincinnati, deld. 33.3

Buffalo, ovens 32.00

Detroit, ovens 32.00

Pontiac, Mich., deld. 33.93

Saginaw, Mich., deld. 35.51

Erie, Pa., ovens 32.00

Everett, Mass., ovens:

New England, deld. 33.55

Indianapolis, ovens 31.21

Ironton, Ohio, ovens 30.54

Cincinnati, deld. 33.54

Kearny, N. J., ovens 31.22

Milwaukee, ovens 32.00

Neville Island (Pittsburgh), Pa., ovens 30.75

Painesville, Ohio, ovens 32.00

Cleveland, deld. 34.19

Philadelphia, ovens 31.00

St. Louis, ovens 33.00

St. Paul, ovens 31.25

Chicago, deld. 34.73

Sweden, Pa., ovens 31.00

Terre Haute, Ind., ovens 31.25

*Within \$5.15 freight zone from works.

Coal Chemicals

(Representative prices)

Cents per gal f.o.b. tank cars or tank trucks plant.

Pure benzene 31.00

Xylene, industrial grade 29.00

Creosote 24.00

Naphthalene, 78 deg 5.00

Toluene, one deg (del. east of Rockies) 25.00

Cents per lb, f.o.b. tank cars or tank trucks del'd.

Phenol, 90 per cent grade 14.75

Per net ton bulk, f.o.b. cars or trucks, plant

Ammonium sulfate, regular grade \$32.00

*Per 82 lb net reel. \$Per 100-lb kegs, 20d nails and heavier.

Scrap Market Is Still in Slump

STEEL's composite on No. 1 heavy melting holds steady at \$33.33, but price test is lacking at most consuming points. Bids on monthend auto lists awaited

Scrap Prices, Page 194

• Pittsburgh — Brokers were encouraged last week when a mill bought 15,000 to 20,000 tons of scrap at the same prices it paid last month: \$39 for No. 1 dealer bundles, and \$26 for No. 2 bundles. Generally, it's thought prices are on bottom, but the trade doesn't expect an upturn until fall. The mills are currently buying only what they'll need to support operations the rest of this quarter.

• Chicago—Scattered sales suggest that some open hearth grades of scrap may be stronger by \$1 a ton, yet there are sufficient offerings at current prices to serve as a counter influence. Transactions are limited, and tonnage involved is small. A better appraisal of the market will be afforded in about a week after

bids close on several industrial lists. A strong influence in the bidding will be the uncertainty of consumers accepting scrap shipments in June because of a possible steel strike. Some mills have already indicated they will accept no shipments after June 15. With foundry operations improving, and scrap consumption up, the cast iron grades have advanced \$1 a ton.

• Philadelphia — Domestic demand is virtually nil, but export business is increasing. Some prices changed this week. Short shoveling turnings are quoted at \$21-\$22, machine shop turnings, \$20, and heavy breakable cast, \$42. Dealers are watching the steel labor negotiations and don't expect much change in business conditions until the issue is settled.

• New York—There's enough ac-

tivity in the market to sustain brokers' buying prices on grades. Slow yard collections and fair export demand have tended to offset light domestic buying.

U. S. Steel Corp., Bethlehem Steel Co., and Alan Wood Steel Co. have received a proposal aimed at increasing utilization of dealer scrap, particularly No. 2 bundles.

The proposal, made by the New York and New Jersey chapters of the Institute of Scrap Iron & Steel, contemplates formation of a co-operative group of dealers to assure the movement of quality scrap in volume sufficient to make it attractive for the steel mills to replace pig iron with scrap in their steel melts.

• Cleveland — The market tone seems a little stronger, largely because dealers and brokers think prices have about reached bottom. They have held unchanged here and in the Valley the last couple of weeks. However, a buying test has been lacking. Expectations are larger tonnage will be offered in the

(Please turn to Page 193)

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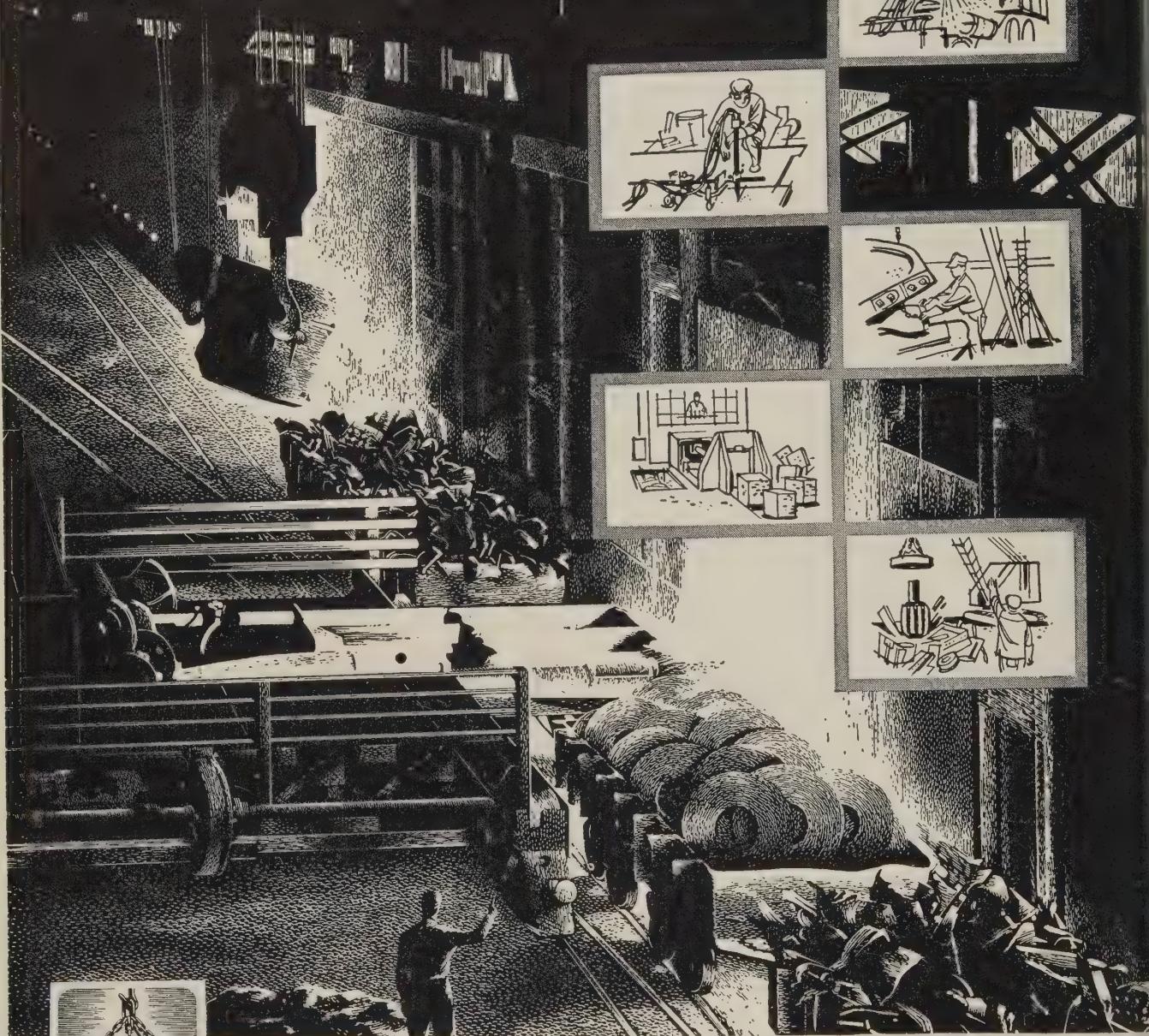
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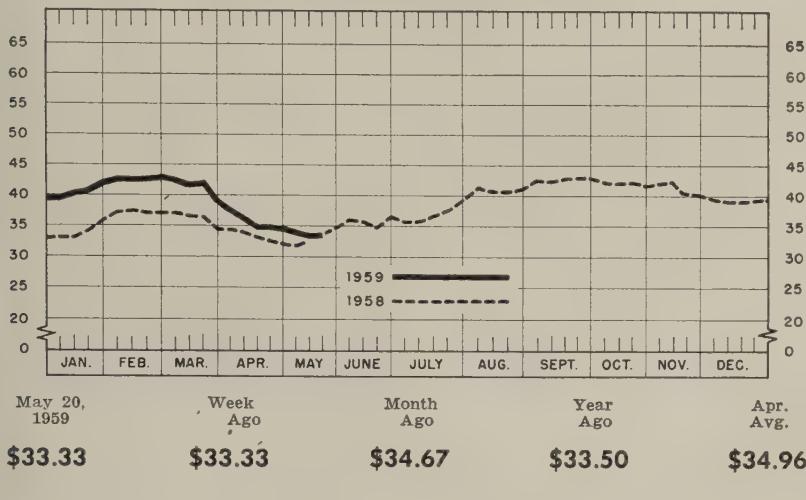
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STEELMAKING SCRAP PRICE COMPOSITE

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania—Compiled by STEEL.



(Concluded from Page 191)

auto lists at the end of this month. Some observers expect active bidding on these lists, and some think bid prices may be up \$1 or so from a month ago.

• Detroit — The market appears steady, but dealers think prices will skid next month. Yard inventories are dwindling, however, with steel mill operations being maintained at high level. Some observers think bids on the auto lists at the end of this month will be off \$2 to \$3 a ton. One dealer in the area thinks there'll be a slight increase.

A couple of deals are pending, and they may result in some change in prices. A local broker is offering 20,000 tons of domestic pig iron to scrap dealers. The iron is reportedly held in the Youngstown district.

• Boston—Steel scrap prices are at the lowest point this year; brokers are paying \$24 for No. 1 heavy melting. Turnings are also quoted lower. Shipments to the steel mills are virtually nil. There's some export business, but buying is light due to accumulations at docks. Foundry grades of scrap are unchanged.

• Buffalo—A decline of \$2 a ton in cast scrap prices highlighted the market here last week. Foundries paid \$45 for cupola cast, and No. 1 machinery cast went off \$2 a ton to \$49. The steel grades held unchanged, but the market tone is

soft. Mills are melting scrap steadily, but they have sizable reserves.

• Cincinnati—Prices are steady despite the dull market. Some observers note a stronger undertone, but there has been no buying to provide a test. Brokers are having difficulty filling old mill orders. One mill is expected to enter the market for fair tonnages for June shipment.

• St. Louis—Trading is thin, the mills buying sparingly. Prices are firm, with supplies showing little change. Clean auto cast is up \$1 a ton, while random length rails are quoted off \$1.

• Birmingham—The Atlanta mill last week bought No. 2 heavy melting scrap at \$2 a ton under its last purchase. Brokers have cut all heavy melting grades, except No. 2 bundles, which grade is now quoted on the same level as No. 2 heavy melting. It's thought the market is now on bottom. Cast iron scrap demand is better, but prices are unchanged.

• Houston — Brokers think prices have bottomed out. Seasonal factors and low prices are throttling tonnage movement.

Mill orders that were placed for shipment through June 15, have been covered by brokers. Both Texas steel mills are not expected to do any significant buying this summer, even if a steel strike is avoided. The mill at Lone Star will not be affected immediately

by a strike because its contract runs until Sept. 7.

Only sporadic export buying is being done. Scattered Louisiana quotations place No. 1 heavy melting at \$31-\$32. Brokers working on a Mexican mill order are having difficulty covering because of the slowdown in country scrap generation.

• San Francisco—The steel scrap market tone is soft, but prices are holding. It's rumored that third quarter tonnage has been canceled by Japanese buyers. Domestic mills are consuming scrap in large volume, but so far inventories have been little more than dented.

• Seattle—Dealers report little material is being generated in the country, and receipts are light. Larger consumers hold substantial inventories, and they are not disposed to add to stocks in the face of a possible shutdown at midyear. Foreign commitments have been completed, and Japan shows no indication of buying additional tonnage.

Structural Shapes . . .

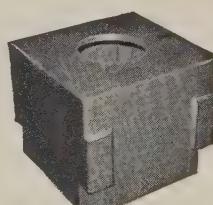
Structural Shape Prices, Page 183

American Bridge Div., U. S. Steel Corp., Pittsburgh, has booked 44,000 tons of structurals for a 55 story, 2.4 million sq ft office building, to be built by Grand Central Building Inc., New York, on a 3½ acre site adjoining Grand Central Terminal. The award was made through Diesel Construction Co., general contractor.

The building will cost \$100 million, reportedly the largest sum

(Please turn to Page 199)

COVERED HOT TOP BRICK INGOT MOLD PLUGS—



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DUNBAR, PA.
BR-7-4213

Iron and Steel Scrap

Consumer prices per gross ton, except as otherwise noted, including brokers' commission, as reported to STEEL, May 20, 1959. Changes shown in *italics*.

STEELMAKING SCRAP COMPOSITE

May 20	\$33.33
May 13	33.33
Apr. Avg.	34.96
May 1958	33.21
May 1954	28.00

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

CLEVELAND

PITTSBURGH

No. 1 heavy melting ..	34.00-35.00
No. 2 heavy melting ..	30.00-31.00
No. 1 dealer bundles ..	38.00-39.00
No. 2 bundles ..	25.00-26.00
No. 1 busheling ..	34.00-35.00
No. 1 factory bundles ..	42.00-43.00
Machine shop turnings ..	19.00-20.00
Mixed borings, turnings ..	19.00-20.00
Short shovel turnings ..	24.00-25.00
Cast iron borings ..	24.00-25.00
Cut structurals:	
2 ft and under ..	43.00-44.00
3 ft lengths ..	42.00-43.00
Heavy turnings ..	30.00-31.00
Punchings & plate scrap ..	43.00-44.00
Electric furnace bundles ..	42.00-43.00

Cast Iron Grades

No. 1 cupola	45.00-46.00
Stove plate	45.00-46.00
Unstripped motor blocks ..	32.00-33.00
Clean auto cast	46.00-47.00
Drop broken machinery ..	51.00-52.00

Railroad Scrap

No. 1 R.R. heavy melt..	39.00-40.00
Rails, 2 ft and under ..	54.00-55.00
Rails, 18 in. and under ..	55.00-56.00
Random rails ..	48.00-49.00
Angles, splice bars ..	48.00-49.00
Railroad specialties ..	47.00-48.00
Rails, rerolling ..	61.00-62.00

Stainless Steel Scrap

18-8 bundles & solids ..	220.00-225.00
18-8 turnings ..	115.00-120.00
430 bundles & solids ..	120.00-125.00
430 turnings ..	55.00-65.00

CHICAGO

No. 1 hvy melt., indus.	33.00-34.00
No. 1 hvy melt., dealer ..	30.00-31.00
No. 2 heavy melting ..	27.00-28.00
No. 1 factory bundles ..	37.00-38.00
No. 1 dealer bundles ..	31.00-32.00
No. 2 bundles ..	21.00-22.00
No. 1 busheling, indus.	33.00-34.00
No. 1 busheling, dealer ..	30.00-31.00
Machine shop turnings ..	15.00-16.00
Mixed borings, turnings ..	17.00-18.00
Short shovel turnings ..	17.00-18.00
Cast iron borings ..	17.00-18.00
Cut structurals, 3 ft ..	40.00-41.00
Punchings & plate scrap ..	41.00-42.00

Cast Iron Grades

No. 1 cupola	47.00-48.00
Stove plate	44.00-45.00
Unstripped motor blocks ..	39.00-40.00
Clean auto cast	54.00-55.00
Drop broken machinery ..	54.00-55.00

Railroad Scrap

No. 1 R.R. heavy melt ..	36.00-37.00
R.R. malleable ..	57.00-58.00
Rails, 2 ft and under ..	52.00-53.00
Rails, 18 in. and under ..	53.00-54.00
Angles, splice bars ..	46.00-47.00
Axes ..	62.00-63.00
Rails, rerolling ..	55.00-56.00

Stainless Steel Scrap

18-8 bundles & solids ..	210.00-215.00
18-8 turnings ..	110.00-115.00
430 bundles & solids ..	115.00-120.00
430 turnings ..	55.00-60.00

YOUNGSTOWN

No. 1 heavy melting ..	35.00-36.00
No. 2 heavy melting ..	26.00-27.00
No. 1 busheling ..	35.00-36.00
No. 1 bundles ..	35.00-36.00
No. 2 bundles ..	23.00-24.00
Machine shop turnings ..	17.00-18.00
Short shovel turnings ..	22.00-23.00
Cast iron borings ..	22.00-23.00
Low phos ..	38.00-39.00
Electric furnace bundles ..	38.00-39.00

Railroad Scrap

No. 1 R.R. heavy melt.	38.00-39.00
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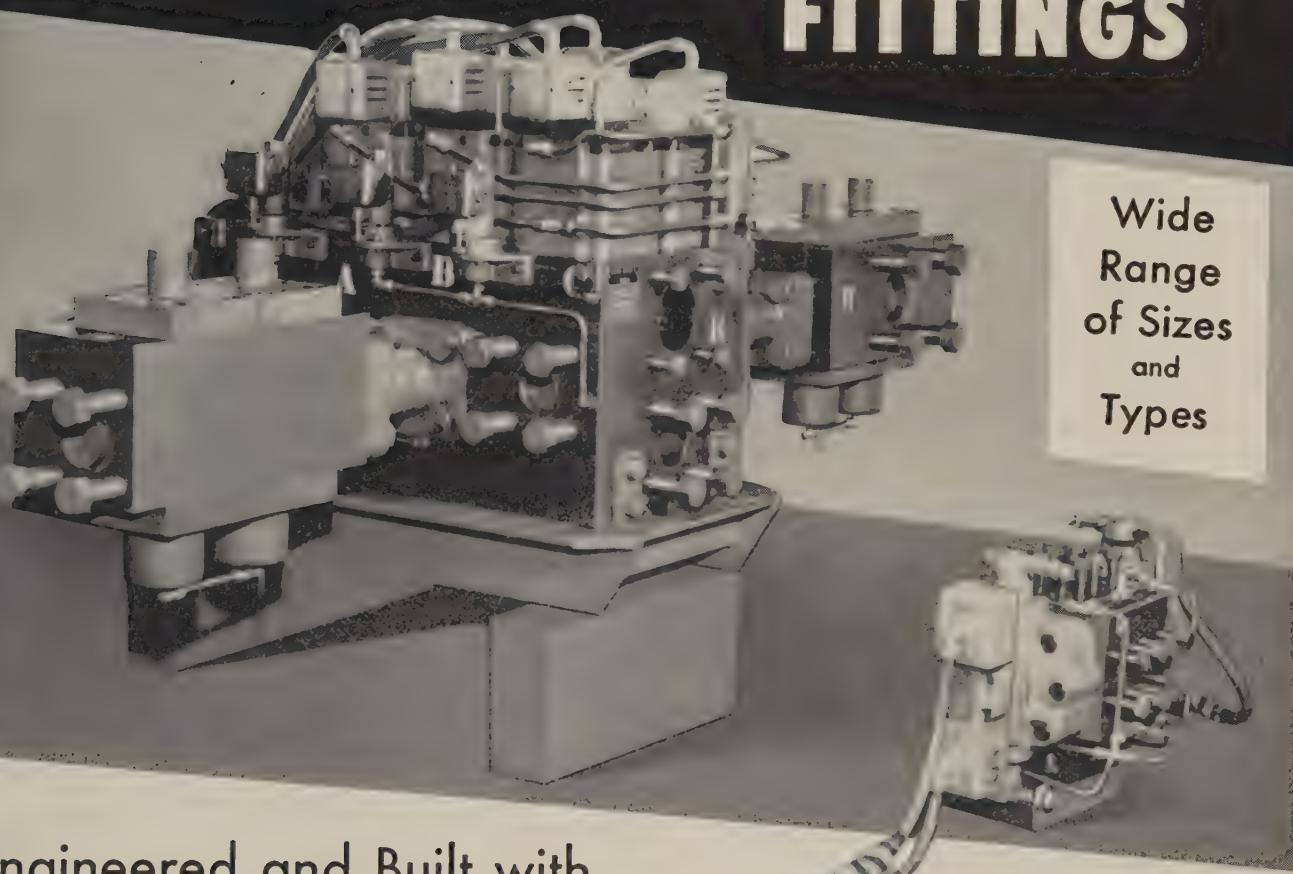
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Aluminum Output Increasing

Primary production is headed for a record year as firms step up operations to keep pace with rising sales. Lead and zinc demand up. Copper may be more stable in future

Nonferrous Metal Prices, Pages 198 & 199

UNLESS some calamity of titanic proportions hits our economy this year, busy potlines at U. S. primary aluminum refiners will churn out a record number of tons.

• **The Amount**—Earlier in the year industry spokesmen predicted 1959 production would hit an all-time high of 1.9 million tons. While first quarter output came to only 456,013 tons (or an annual rate of 1,714,052 tons), it now looks like the estimate will be met and possibly surpassed.

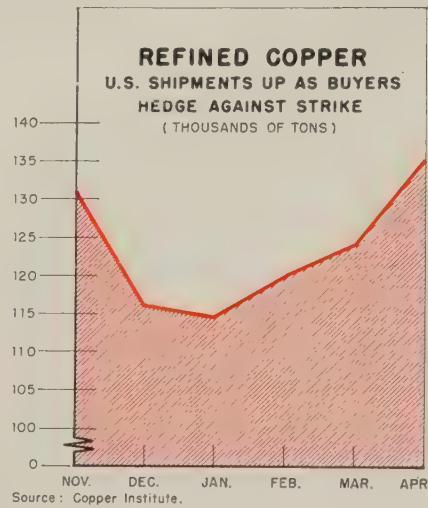
Here's why: Primary producers have steadily increased their output since the first of the year. Just recently Reynolds Metals Co. and Aluminum Co. of America announced they are starting up potlines with a combined yearly capacity of 70,000 tons. STEEL estimates these increases have upped current operations to an annual rate of 1,933,250 tons.

• **More**—Look for output to rise even more as the year progresses. Not only are idle lines being reactivated, but a total of 270,000 tons of new production will be in operation by yearend. At this moment it appears the only factor that could put the brakes on production would be a lengthy labor walkout. (Consensus: It's not likely.)

Production is spurring because new orders are pouring in faster than anticipated, and the trend is expected to continue. Producers report they've been pushed hard to meet demand in some items, particularly sheets and extrusions.

• **Still Too Much**—Even with the step up in demand, the industry has excess capacity, and 150,000 additional tons will come on stream next year. The industry's announced plan is to keep capacity

several steps ahead of demand so potential users won't shy away because of shortage fears. There's plenty of raw material (bauxite reserves have risen over 50 per cent



since 1950) and electrical generation capacity to meet this goal.

Marketing men don't want the supply-demand scale to get too much out of balance though. That's why even more dollars are being channeled into research and development budgets. Aluminum Co. of America, for example, says it will spend over \$18 million on R&D this year. Breakdown: \$9 million for process and production development, \$6 million for improvement

in equipment and manufacturing methods, and the remainder for exploration.

Copper Market Stabilizing

The violent price fluctuations that have plagued copper in the past may crop up less often in the future. Reason: Years of exploration and development of new properties are resulting in greater availability.

Simon D. Strauss, vice president of sales for American Smelting & Refining Co., makes this case for copper's problem: Copper is a mining industry as opposed to aluminum and steel, which are basically processing industries. So copper capacity is tied to the discovery of ore bodies.

Lead, Zinc Sales Strong

Demand for both lead and zinc is good. In the case of lead, this is due to better consumption, plus some buying for inventory as a hedge against a possible summer strike. Fewer scrap offerings have sent buyers who normally purchase scrap to the primary producers for their metal. All those factors add up to the strong possibility that the lead price will rise another 0.5 cent to 12.5 cents a pound. That was the opinion of nonferrous prognosticators as STEEL went to press.

Zinc sales are surprisingly good considering some of the steel people are beginning to buy less metal in anticipation of labor difficulties. The price looks stable until labor negotiations are concluded. If there's no steel strike, watch for the price to shoot up.

NONFERROUS PRICE RECORD

	Price May 20	Last Change	Previous Price	Apr. Avg	Mar. Avg	May. 1958 Avg
Aluminum .	24.70	Aug. 1, 1958	24.00	24.700	24.700	24.000
Copper	31.50-32.00	Apr. 30, 1959	31.50-32.50	32.404	32.031	24.433
Lead	11.80	May 7, 1959	11.30	10.992	11.238	11.512
Magnesium .	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	103.25	May 15, 1959	103.125	102.490	103.000	94.510
Zinc	11.00	Feb. 25, 1959	11.50	11.000	11.000	10.000

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deid. Conn. Valley; LEAD, common grade, deid. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deid. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5%+, f.o.b. shipping point; MAGNESIUM, pig 99.8%, Velasco, Tex.

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Buenos Aires, Calcutta, Dusseldorf, Montreal, Rio de Janeiro, Sydney, Tokyo

economic analysis • plant location • engineering • design • procurement • expediting • construction

ion turnings, 18.00-18.50; new brass clips, 17.50-18.00; light brass, 13.00-13.50; yellow brass, 14.00-14.50; new brass rod, 15.00-15.50; auto radiators, unsweated, 15.00-15.50; cocks and faucets, 15.50-16.00; pipe, 15.50-16.00.

I: Soft scrap lead, 7.75-8.25; battery cases, 2.25-2.50; lithotype and stereotype, 9.25-10.00; electrolyte, 7.75-8.25; mixed babbitt, 10.00.

Clippings: Clippings, 26.00-28.00; old sheets, 0.25-0.50; turnings, 20.00-21.00; rods, 26.00-0.50.

Sheets and clips: Sheets and clips, 52.00-54.00; rolled rods, 52.00-54.00; turnings, 38.00-40.00; rod bars, 52.00-54.00.

Old zinc: Old zinc, 3.25-3.50; new diecast scrap, 3.25; old diecast scrap, 1.75-2.00.

Old castings and sheets: Old castings and sheets, 9.75-12.50; clean borings and turnings, 6.25-6.75; segregated low copper clips, 13.00-13.50; segregated high copper clips, 13.00-13.50; mixed low copper clips, 12.00-12.50; mixed high copper bars, 11.00-11.50.

(Cents per pound, Chicago)

Old castings and sheets: Old castings and sheets, 11.75-12.50; clean borings and turnings, 9.50-10.00; segregated low copper clips, 16.75-17.25; segregated high copper clips, 15.75-16.25; mixed low copper clips, 16.00-16.50; mixed high copper bars, 15.25-15.75.

(Cents per pound, Cleveland)

Old castings and sheets: Old castings and sheets, 10.50-12.00; clean borings and turnings, 9.50-10.00; segregated low copper clips, 14.50-15.00; segregated high copper clips, 13.00-13.50; mixed low copper clips, 13.50-14.00; mixed high copper bars, 12.50-13.00.

REFINERS' BUYING PRICES

ents per pound, carlots, delivered refinery) **Copper:** Heavy scrap, 0.020-in. and over, not less than 1.5% Be, 57.50; light scrap, 52.50; turnings and borings, 37.50. **Copper and Brass:** No. 1 heavy copper and wire, 27.75; No. 2 heavy copper and wire, 25.50; light copper, 24.25; refinery brass (% copper) per dry copper content, 26.00.

INGOTMAKERS' BUYING PRICES

Brass: No. 1 heavy copper and wire, 27.75; No. 2 heavy copper and wire, 25.50; light copper, 24.25; No. 1 composition rings, 21.00; No. 1 composition solids, 21.50; yellow brass solids, 16.00; yellow brass rings, 15.00; radiators, 17.00.

PLATING MATERIAL

.o.b. shipping point, freight allowed on quantities)

ANODES

Platinum: Special or patented shapes, \$1.30. **Copper:** Flat-rolled, 47.79; oval, 46.00, 5000-0000 lb; electrodeposited, 40.50, 2000-5000 lots; cast, 43.00, 5000-10,000 lb quantities. **Steel:** Depolarized, less than 100 lb, 114.25; wire, 27.00; No. 2 heavy copper and wire, 20.00; light copper, 23.75; refinery brass duct 3 cents a lb.

Bar or slab: less than 200 lb, 121.50; 200-99 lb, 120.00; 500-999 lb, 119.50; 1000 lb or more, 119.00.

Wire: Balls, 18.00; flat tops, 18.00; flats, 17.75; ovals, 20.00, ton lots.

CHEMICALS

Chromium Oxide: \$1.30 per lb in 100-lb drums. **Chromic Acid (flake):** 100-2000 lb, 31.00; 2000-0000 lb, 30.50; 10,000-20,000 lb, 30.00; 20,000 lb or more, 29.50.

Copper Cyanide: 100-200 lb, 65.90; 300-900 lb, 63.00; 1000-19,900 lb, 61.90.

Copper Sulphate: 100-1900 lb, 15.30; 2000-5900 lb, 13.30; 6000-11,900 lb, 13.05; 12,000-22,900 lb, 12.80; 23,000 lb or more, 12.30.

Chlorine: 100 lb, 45.00; 200 lb, 43.00; 1000 lb, 42.00; 400-4900 lb, 40.00; 5000-9900 lb, 40.00; 10,000 lb or more, 37.00.

Chromic Sulphate: 5000-22,999 lb, 29.00; 23,000-990 lb, 28.50; 40,000 lb or more, 28.00.

Cyanide (Cyanobrik): 200 lb, 20.80; 0-800 lb, 19.80; 1000-19,800 lb, 18.80; 20,000 lb or more, 17.80.

Stannate: Less than 100 lb, 80.10; 100-1000 lb, 70.70; 700-1900 lb, 68.00; 2000-9900 lb, 68.00; 10,000 lb or more, 64.80.

Chloride (Anhydrous): 25 lb, 155.60; 0 lb, 150.70; 400 lb, 148.30; 800-19,900 lb, 74.40; 20,000 lb or more, 101.30.

Sulphate: Less than 50 lb, 140.70; 1 lb, 110.70; 100-1900 lb, 108.70; 2000 lb or more, 106.70.

Cyanide: 100-200 lb, 59.00; 300-900 lb, 50.00.

(Concluded from Page 193)
ever expended for an office building.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 184

Bids are in at Ephrata, Wash., for the proposed Wanapum Dam and powerhouse on the Columbia River, involving 33,000 tons of reinforcing bars and other steel products. The award is expected shortly.

Highway construction continues to take heavy tonnages of reinforcing steel. There's also a substantial movement to other types of public and private building.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

40,000 tons, 55 story, 2.4 million sq ft office building, Grand Central Building Inc., New York, through Diesel Construction Co., general contractor, to American Bridge Div., U. S. Steel Corp., Pittsburgh. The structure will be erected on a 3 1/2 acre site now occupied by the 6-story Grand Central Building, adjoining Grand Central Terminal. It will cost \$100 million.

4750 tons, towers, Naval radio installation, Cutler, Maine, to Societa Anonima Electrificatione, Milan, Italy, through Nat Harrison, Miami, Fla., subcontractor to Continental Electronics Mfg. Co., Boston; counterweights, rope, and miscellaneous steel to Bethlehem Steel Co., Bethlehem, Pa.

1120 tons, steel towers, Baker and Mt. Hebo air stations, Oregon, and Cottonwood, Idaho, to Isaacson Iron Works, Seattle, at \$346,360 by U. S. Engineer; Bethlehem Pacific Coast Steel Corp., Seattle, bid \$132,065 for Mt. Hebo only.

735 tons, laboratory and shop buildings, Ft. Bliss, Tex., to Darbyshire Steel Co. Inc., El Paso, Tex.; Robert E. McKee, El Paso, general contractor.

700 tons, ballistic missile installation, Fairchild Field, Washington State, to Isaacson Iron Works, Seattle; Patti-MacDonald Co. & Associates, general contractor.

530 tons, buildings, Ethan Allen AFB, Vermont, to Groisser & Shlager Iron Works, Somerville, Mass.; bids direct to U. S. Engineer, Waltham, Mass.

370 tons, also 650 tons of steel piling, radar tower, Naval AFB, Brunswick, Maine, to Bancroft & Martin Rolling Mills Co., South Portland, Maine. Bids direct to the U. S. Engineer, Waltham, Mass.

350 tons, bank building and garage, Liberty National Bank, Louisville, to Steel Fabricators Inc., Louisville; F. W. Owens Co., Louisville, general contractor; 90 tons of reinforcing bars to American Builders' Supply Co., Louisville.

STRUCTURAL STEEL PENDING

14,000 tons, transmission tower steel for Bonneville Power Administration, Portland, Oreg.; Societa Anonima Electrificatione, Milan, Italy, low at \$3,324,556; Bethlehem Pacific Coast Steel Corp., Seattle, low domestic bidder at \$4,074,406.

3750 tons, including 750 tons of bearing piles, balance steel sheet piling, foundations, Prudential Tower Center, Boston, to Bethlehem Steel Co., Bethlehem, Pa.; George A. Fuller Construction Co., Boston, general contractor.

571 tons, state bridgework, Somerset and Middlesex counties, New Jersey, bids June 4; also, 492 tons of reinforcing bars.

235 tons, three stringer bridges, Medford-Stoneham, Mass. C. J. Maney Co. Inc., Lexington, Mass., low on the general contract.

130 tons, two-span composite girder bridge, Willington, Conn., bids June 1, Hartford, Conn.

PRESSES & BRAKES

16' x 700 Ton BRAKE, \$7500. 500-1500T Presses, 41-196" LR 200T Gap Frame, 99" LR, \$3500. Sacrifice for immediate removal. Inspect in Cleveland under power.

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Aggressive manufacturers representative seeking new accounts, State of Ohio only. Excellent metallurgical background. Familiar with heat treating techniques and problems. Successful record of sales and public relations. **BEST SALES**, 6321 Crossview Road, Cleveland 31, Ohio.

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METAL FINISHING SPECIALIST. Young college graduate, chemist or engineer preferred. Wanted for development of processing oils and lubricants to be marketed to metal working industries. Position offers unusually attractive growth potential with nationally recognized Eastern United States oil refiner expanding into new field of activity. State full background, education, experience, and salary requirements. Write Box 767, STEEL, Penton Bldg., Cleveland 13, Ohio.

MIDWEST WIRE MILL desires a graduate M.E. Wire mill experience desirable but not essential. Should have 5-10 years practical experience in Mfg. When applying give complete resume of education, experience and salary requirements. Reply Box 768, STEEL, Penton Bldg., Cleveland 13, Ohio.

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PROGRESSIVE STEEL CASTINGS FOUNDRY HAS OPENING FOR A STAFF ACCOUNTANT TO ASSIST CONTROLLER. APPLICANT MUST HAVE FOUNDRY EXPERIENCE IN STANDARD JOB AND PROCESS COST, BUDGETS, CREDITS AND COLLECTIONS, PREPARATION OF FINANCIAL STATEMENTS, INCENTIVE PLANS, AND SUPERVISION OF GENERAL ACCOUNTING FUNCTIONS. I.B.M. EXPERIENCE DESIRABLE. EXCELLENT OPPORTUNITY FOR FUTURE ADVANCEMENT WITH THIS MODERN FOUNDRY LOCATED IN THE MIDDLE-WEST. SEND COMPLETE DETAILS OF EDUCATION AND EXPERIENCE, AND SALARY REQUIREMENTS TO BOX 766, STEEL, PENTON BLDG., CLEVELAND 13, OHIO.

Representatives Wanted

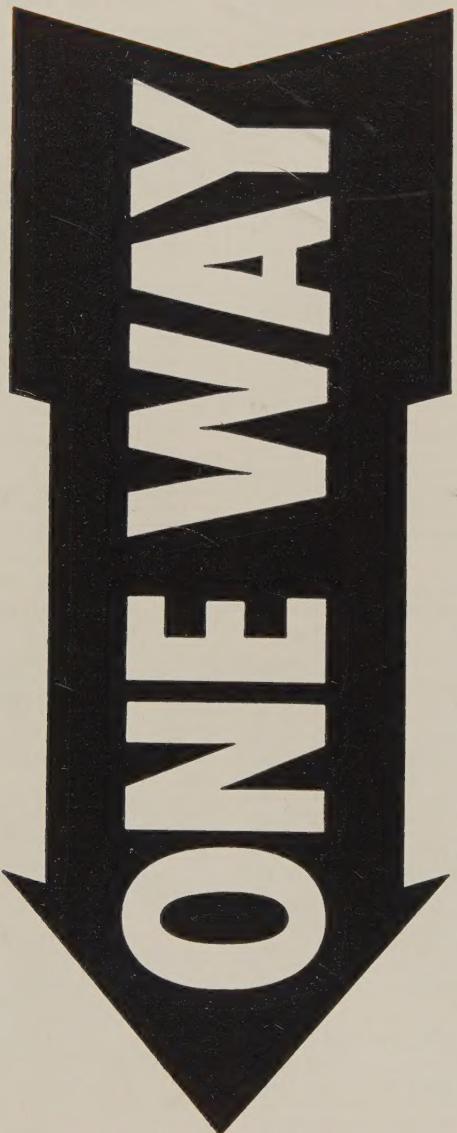
WANTED: MANUFACTURERS' AGENT for New England territory to represent light hammer closed die forge plant. Please send particulars and lines now represented. Box 760, STEEL, Penton Bldg., Cleveland 13, Ohio.

Positions Wanted

SALES MANAGER with 25 years experience in steel tubular products will relocate. Reply Box 765, STEEL, Penton Bldg., Cleveland 13, Ohio.

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Consumers' Scrap Stocks Show Slight Increase

Stocks of ferrous scrap held by consumers on Mar. 31 were 8,237,000 gross tons, a slight increase over the previous month's total of 8,197,032 tons, reports the U. S. Bureau of Mines. Stocks of pig iron, 3,169,000 tons, were 4 per cent lower than they were at the end of February.

Home scrap produced during March totaled 3,860,000, an increase of 19 per cent over the February total. Purchased scrap received by consumers amounted to 2,849,000 tons, 26 per cent greater than during the preceding month. Of these purchases, 86 per cent was received from dealers and 14 per cent from other sources.

Domestic consumption of scrap for all purposes during March (6,661,000 tons) was the highest monthly quantity since October 1956, reports the bureau. The purchased scrap received by consuming industries (2,849,000 tons) was the highest since January, 1957.

Pig iron consumed during the month (6,809,000 tons) was an all-time high,

The total metallics melt (scrap and pig iron) was 13,470,000 tons. It was the highest on record and consisted of 49.5 per cent scrap, and 50.5 per cent pig iron.

Pig Iron . . .

Pig Iron Prices, Page 188

May business in merchant pig iron is expected to be the best for any month so far this year. But trading is not particularly brisk, and there's only a little pressure from consumers seeking to build up inventories.

Deliveries are relatively easy, and users so far have shown little concern over the possibility of a stringency this summer in event of a steel strike. Continued offerings of foreign iron at prices under those of the domestic market, are contributing to complacency.

But sales are considerably better than they were a year ago at this season, with railroad shops and automobile foundries taking fairly sizable tonnages. Improved demand for castings is prompting foundries to order a little more tonnage than they had been.